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LONDON

1904

THE WORKS OF
SIR THOMAS BROWNE

Edited by

CHARLES SAYLE

VOLUME II

LONDON
GRANT RICHARDS
1904

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PREFATORY NOTE

THE frontispiece to this volume is reproduced from a photograph kindly lent to me for the purpose by Mr. Charles Williams, F.R.C.S.E., of Norwich, whose note upon the measurements of Sir Thomas Browne's skull appeared as Appendix II. in the edition of Browne's *Hydriotaphia* and *Garden of Cyrus*, published in the 'Golden Treasury Series,' by Messrs. Macmillan and Co., in 1896.

The identification of the author quoted in the margin of page 233 (Book V. Chapter X.), I owe to Mr. W. Aldis Wright.

C. S.

May 1, 1904.

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PSEUDODOXIA EPIDEMICA

THE THIRD BOOK—*continued*

CHAPTER XI

Of Griffins.

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THAT there are Griffins in Nature, that is a mixt and dubious Animal, in the fore-part resembling an Eagle, and behind, the shape of a Lion, with erected ears, four feet and a long tail, many affirm, and most, I perceive, deny not. The same is averred by *Ælian*, *Solinus*, *Mela*, and *Herodotus*, countenanced by the Name sometimes found in Scripture, and was an Hieroglyphick of the Egyptians.

Notwithstanding we find most diligent enquirers to be of a contrary assertion. For beside that *Albertus* and *Pliny* have disallowed it, the learned *Aldrovandus* hath in a large discourse rejected it; *Mathias Michovius* who writ of those Northern parts wherein men place these Griffins, hath positively concluded against it; and if examined by the Doctrine of Animals, the invention is monstrous, nor much inferiour unto the figment of Sphynx, Chimæra, and Harpies, for though there be some flying Animals of mixed and participating Natures, that is, between Bird and quadruped, yet are their wings and legs so set together, that they seem to make each other; there being a commixtion

CHAP. XI

of both, rather then an adaptation or cement of prominent parts unto each other, as is observable in the Bat, whose wings and fore-legs are contrived in each other. For though some species there be of middle and participating Natures, that is, of Bird and Beast, as Bats and some few others, yet are their parts so conformed and set together, that we cannot define the beginning or end of either; there being a commixtion of both in the whole, rather then an adaptation or cement of the one unto the other.

Levit. 11.

Now for the word γρὺψ or *Gryps*, sometimes mentioned in Scripture, and frequently in humane Authors, properly understood, it signifies some kind of Eagle or Vulture, from whence the Epithete *Grypus* for an hooked or Aquiline Nose. Thus when the Septuagint makes use of this word, *Tremellius* and our Translation hath rendred it the Ossifrage, which is one kind of Eagle. And although the Vulgar Translation, and that annexed unto the Septuagint, retain the word *Gryps*, which in ordinary and school construction is commonly rendred a Griffin, yet cannot the Latine assume any other sense then the Greek, from whence it is borrowed. And though the Latine *Gryphes* be altered somewhat by the addition of an *h*, or aspiration of the letter π, yet is not this unusual; so what the Greeks call τρόπαιον, the Latine will call *Trophæum*; and that person which in the Gospel is named Κλέοπας, the Latines will render *Cleophas*. And therefore the quarrel of *Origen* was unjust, and his conception erroneous, when he conceived the food of Griffins forbidden by the law of *Moses*: that is, Poetical Animals, and things of no existence. And therefore when in the Hecatombs and mighty Oblations of the Gentiles, it is delivered they sacrificed Gryphes or

Griffins; hereby we may understand some stronger sort of Eagles. And therefore also when its said in *Virgil* of an improper Match, or *Mopsus* marrying *Nysa*, *Jungentur jam gryphes equis*; we need not hunt after other sense, then that strange unions shall be made, and different Natures be conjoined together. CHAP. XI

As for the testimonies of ancient Writers, they are but derivative, and terminate all in one *Aristeus* a Poet of *Proconesus*; who affirmed that near the *Arimaspi*, or one-eyed Nation, Griffins defended the Mines of Gold. But this, as *Herodotus* delivereth, he wrote by hear-say; and *Michovius* who hath expresly written of those parts, plainly affirmeth, there is neither Gold nor Griffins in that Country, nor any such Animal extant; for so doth he conclude, *Ego vero contra veteres authores, Gryphes nec in illa septentrionis, nec in aliis orbis partibus inveniri affirmarim.*

Lastly, Concerning the Hieroglyphical authority, although it nearest approach the truth, it doth not infer its existency. The conceit of the *Griffin* properly taken being but a symbolical phansie, in so intollerable a shape including allowable morality. So doth it well make out the properties of a *Guardian*, or any person entrusted; the ears implying attention, the wings celerity of execution, the Lion-like shape, courage and audacity, the hooked bill, reservance and tenacity. It is also an Emblem of valour and magnanimity, as being compounded of the Eagle and Lion, the noblest Animals in their kinds; and so is it appliable unto Princes, Presidents, Generals, and all heroick Commanders; and so is it also born in the Coat-arms of many noble Families of *Europe*.

But the original invention seems to be Hiero-

CHAP. XI

glyphical, derived from the Egyptians, and of an higher signification. By the mystical conjunction of Hawk and Lion, implying either the Genial or the sydereous Sun, the great celerity thereof, and the strength and vigour in its operations. And therefore under such Hieroglyphicks *Osyris* was described; and in ancient Coins we meet with Gryphins conjointly with *Apollo's*, *Tripodes* and Chariot wheels; and the marble Gryphins at Saint *Peters* in *Rome*, as learned men conjecture, were first translated from the Temple of *Apollo*. Whether hereby were not also mystically implied the activity of the Sun in Leo, the power of God in the Sun, or the influence of the Cœlestial *Osyris*, by *Moptha* the Genius of *Nilus*, might also be considered. And then the learned *Kircherus*, no man were likely to be a better *Oedipus*.

CHAPTER XII

Of the Phœnix.

THAT there is but one Phœnix in the World, which after many hundred years burneth it self, and from the ashes thereof ariseth up another, is a conceit not new or altogether popular, but of great Antiquity; not only delivered by humane Authors, but frequently expressed also by holy Writers; by *Cyril*, *Epiphanius*, and others, by *Ambrose* in his Hexameron, and *Tertullian* in his Poem *De Judicio Domini*; but more agreeably unto the present sense, in his excellent Tract, *De Resurrectione carnis*. *Illum dico alitem orientis peculiarem, de singularitate famosum,*

de posteritate monstruosum; qui semetipsum libenter funerans renovat, natali fine decedens, atque succedens iterum Phœnix. Ubi jam nemo, iterum ipse; quia non jam, alius idem. The Scripture also seems to favour it, particularly that of *Job* 21. In the interpretation of *Beda, Dicebam in nidulo meo moriar, et sicut Phœnix multiplicabo dies:* and *Psal.* 31. δίκαιος ὥσπερ φοῖνιξ ἀνθήσει, *vir justus ut Phœnix florebit,* as *Tertullian* renders it, and so also expounds it in his Book before alledged. CHAP. XII

All which notwithstanding, we cannot presume the existence of this Animal; nor dare we affirm there is any Phœnix in Nature. For, first there wants herein the definitive confirmator and test of things uncertain, that is, the sense of man. For though many Writers have much enlarged hereon, yet is there not any ocular describer, or such as presumeth to confirm it upon aspection. And therefore *Herodotus* that led the story unto the *Greeks*, plainly saith, he never attained the sight of any, but only in the picture. *Against the story of the Phœnix.*

Again, Primitive Authors, and from whom the stream of relations is derivative, deliver themselves very dubiously; and either by a doubtful parenthesis, or a timorous conclusion overthrow the whole relation. Thus *Herodotus* in his *Euterpe*, delivering the story hereof, presently interposeth, ἐμοὶ μὲν οὐ πίστα λέγοντες; that is, which account seems to me improbable. *Tacitus* in his annals affordeth a larger story, how the Phœnix was first seen at *Heliopolis* in the reign of *Sesostris*, then in the reign of *Amasis*, after in the days of *Ptolomy*, the third of the *Macedonian* race; but at last thus determineth, *Sed Antiquitas obscura, et nonnulli falsum esse hunc Phœnicem neque Arabum è terris credidere.* *Pliny* makes yet a fairer story, that

CHAP. XII

the Phœnix flew into *Egypt* in the Consulship of *Quintus Plancius*, that it was brought to *Rome* in the Censorship of *Claudius*, in the eight hundred year of the City, and testified also in their records; but after all concludeth, *Sed quæ falsa nemo dubitabit*, As we read it in the fair and ancient impression of *Brixia*; as *Aldrovandus* hath quoted it, and as it is found in the manuscript Copy, as *Dalechampius* hath also noted.

Moreover, Such as have naturally discoursed hereon, have so diversly, contrarily, or contradictorily delivered themselves, that no affirmative from thence can reasonably be deduced. For most have positively denied it, and they which affirm and believe it, assign this name unto many, and mistake two or three in one. So hath that bird been taken for the Phœnix which liveth in *Arabia*, and buildeth its nest with Cinnamon; by *Herodotus* called *Cinnamulgus*, and by *Aristotle*, *Cinnamomus*; and as a fabulous conceit is censured by *Scaliger*. Some have conceived that bird to be the Phœnix, which by a *Persian* name with the *Greeks* is called *Rhyntace*; but how they made this good we find occasion of doubt; whilest we read in the life of *Artaxerxes*, that this is a little bird brought often to their Tables, and wherewith *Parysatis* cunningly poisoned the Queen. The *Manucodiata* or Bird of Paradise, hath had the honour of this name, and their feathers brought from the *Molucca's* do pass for those of the Phœnix. Which though promoted by rarity with us, the *Eastern* Travellers will hardly admit; who know they are common in those parts, and the ordinary plume of *Janizaries* among the *Turks*. And lastly, the Bird *Semenda* hath found the same appellation, for so hath *Scaliger* observed and refuted; nor will the solitude

of the Phœnix allow this denomination; for many there are of that species, and whose trifistulary bill and crany we have beheld our selves. Nor are men only at variance in regard of the Phœnix it self, but very disagreeing in the accidents ascribed thereto: for some affirm it liveth three hundred, some five, others six, some a thousand, others no less then fifteen hundred years; some say it liveth in *Æthiopia*, others in *Arabia*, some in *Egypt*, others in *India*, and some in *Utopia*; for such a one must that be which is described by *Lactantius*; that is, which neither was singed in the combustion of *Phaeton*, or overwhelmed by the innundation of *Deucalion*. CHAP. XII

Lastly, Many Authors who have discoursed hereof, have so delivered themselves, and with such intentions, that we cannot from thence deduce a confirmation. For some have written Poetically, as *Ovid*, *Mantuan*, *Lactantius*, *Claudian*, and others: Some have written mystically, as *Paracelsus* in his Book *De Azoth*, or *De ligno et linea vitæ*; and as several Hermetical Philosophers, involving therein the secret of their Elixir, and enigmatically expressing the nature of their great work. Some have written Rhetorically, and concessively, not controverting, but assuming the question, which taken as granted, advantaged the illation. So have holy men made use hereof as far as thereby to confirm the Resurrection; for discoursing with Heathens who granted the story of the Phœnix, they induced the Resurrection from principles of their own, and positions received among themselves. Others have spoken Emblematically and Hieroglyphically; and so did the *Egyptians*, unto whom the Phœnix was the Hieroglyphick of the Sun. And this was probably the ground of the whole relation; succeeding Ages

not expressed φοῖνιξ, but στέλεχος φοίνικ
of the Palm-tree, which is also called I
therefore the construction will be very
applied unto some vegetable nature.
safely insist upon the Greek expression
though the Vulgar translates it *Palma*, and
the word Phœnix, others do render it by
different sense; for so hath *Tremellius* (
Dicebam quod apud nidum meum expir
arena multiplicabo dies; so hath the *Gene*
translated it, *I said I shall die in my Ne*
multiply my days as the sand. As for that
of Psalms, *Vir justus ut Phœnix florebit*, as
and *Tertullian* render it, it was only a m
the Homonymy of the Greek word P
signifies also a Palm-tree. Which is a fal
vocation, from a community in name
common nature; and whereby we may as firm
that Diaphœnicon a purging Electuary ha
of the Phœnix for its ingredient; which re
name from Dates, or the fruit of the Pal
whence, as *Pliny* delivers, the Phœnix had

Nor do we only arraign the existence of
but many things are questionable which

but also holy Scripture; which plainly affirms, there went of every sort two at least into the Ark of *Noah*, according to the Text, *Every Fowl after his kind, every bird of every sort, they went into the Ark, two and two of all flesh, wherein there is the breath of life, and they that went in, went in both male and female of all flesh.* It infringeth the benediction of God concerning multiplication. God blessed them, saying, *Be fruitful and multiply, and fill the waters in the seas, and let fowl multiply in the earth*: And again, *Bring forth with thee every living thing, that they may breed abundantly in the earth, and be fruitful and multiply upon the earth*: which terms are not appliable unto the Phœnix, whereof there is but one in the world, and no more now living then at the first benediction. For the production of one, being the destruction of another, although they produce and generate, they encrease not; and must not be said to multiply, who do not transcend an unity.

CHAP. XII

Gen. 7.

Gen. 1.

Chap. 8.

As for longævity, that it liveth a thousand years or more; beside that from imperfect observations and rarity of appearance, no confirmation can be made; there may be probable a mistake in the compute. For the tradition being very ancient and probably Egyptian, the *Greeks* who dispersed the Fable, might summ up the account by their own numeration of years; whereas the conceit might have its original in times of shorter compute. For if we suppose our present calculation, the Phœnix now in nature will be the sixth from the Creation, but in the middle of its years; and if the *Rabbins* Prophecie succeed, shall conclude its days not in his own but the last and general flames, without all hope of Reviviction.

That the World should last but six thousand years.

Concerning its generation, that without all conjunc-

CHAP. XII

tion it begets and reseminates it self, hereby we introduce a vegetable production in Animals, and unto sensible natures, transfer the propriety of Plants; that is, to multiply within themselves, according to the Law of the Creation, *Let the earth bring forth grass, the herb yielding seed, and the tree yielding fruit, whose seed is in it self.* Which is indeed the natural way of Plants, who having no distinction of sex, and the power of the species contained in every *individuum*, beget and propagate themselves without commixtion; and therefore their fruits proceeding from simpler roots, are not so unlike, or distinguishable from each other, as are the off-springs of sensible creatures and prolifications descending from double originals. But Animal generation is accomplished by more, and the concurrence of two sexes is required to the constitution of one. And therefore such as have no distinction of sex, engender not at all, as *Aristotle* conceives of Eels, and testaceous animals. And though Plant-animals do multiply, they do it not by copulation, but in a way analogous unto Plants. So *Hermaphrodites* although they include the parts of both sexes, and may be sufficiently potent in either; yet unto a conception require a separated sex, and cannot impregnate themselves. And so also though *Adam* included all humane nature, or was (as some opinion) an *Hermaphrodite*, yet had he no power to propagate himself; and therefore God said, *It is not good that man should be alone, let us make him an help meet for him*; that is, an help unto generation; for as for any other help, it had been fitter to have made another man.

Gen. 1.

Now whereas some affirm that from one Phœnix there doth not immediately proceed another, but the first corrupteth into a worm, which after becometh

a Phœnix, it will not make probable this production. For hereby they confound the generation of perfect animals with imperfect, sanguineous with exanguious, vermiparous with oviparous, and erect Anomalies, disturbing the laws of Nature. Nor will this corruptive production be easily made out in most imperfect generations; for although we deny not that many animals are vermiparous, begetting themselves at a distance, and as it were at the second hand (as generally Insects, and more remarkably Butter-flies and Silkworms) yet proceeds not this generation from a corruption of themselves, but rather a specifical and seminal diffusion, retaining still the Idea of themselves, though it act that part a while in other shapes. And this will also hold in generations equivocal, and such as are not begotten from Parents like themselves; so from Frogs corrupting, proceed not Frogs again; so if there be anatiferous Trees, whose corruption breaks forth into Bernacles, yet if they corrupt, they degenerate into Maggots, which produce not them again. For this were a confusion of corruptive and seminal production, and a frustration of that seminal power committed to animals at the Creation. The problem might have been spared, *Why we love not our lice as well as our children? Noah's* Ark had been needless, the graves of Animals would be the fruitful'st wombs; for death would not destroy, but empeople the world again.

CHAP. XII

Irregularities.

Since therefore we have so slender grounds to confirm the existence of the Phœnix, since there is no ocular witness of it, since as we have declared, by Authors from whom the story is derived, it rather stands rejected; since they who have seriously discoursed hereof, have delivered themselves negatively, diversly,

CHAP. XII

or contrarily; since many others cannot be drawn into Argument, as writing Poetically, Rhetorically, Enigmatically, Hieroglyphically; since holy Scripture alledged for it duly perpended, doth not advantage it; and lastly, since so strange a generation, unity and long life, hath neither experience nor reason to confirm it, how far to rely on this tradition, we refer unto consideration.

ἀνάρμοστα.

But surely they were not well-wishers unto parable Physick, or remedies easily acquired, who derived medicines from the Phœnix; as some have done, and are justly condemned by *Pliny*; *Irridere est vitæ remedia post millesimum annum reditura monstrare*; It is a folly to find out remedies that are not recoverable under a thousand years; or propose the prolonging of life by that which the twentieth generation may never behold. More veniable is a dependance upon the Philosophers stone, potable gold, or any of those Arcana's whereby *Paracelsus* that died himself at forty-seven, gloried that he could make other men immortal. Which, although extreamly difficult, and *tantum non* infesible, yet are they not impossible, nor do they (rightly understood) impose any violence on Nature.

De sanitate tuenda.

And therefore if strictly taken for the Phœnix, very strange is that which is delivered by *Plutarch*, That the brain thereof is a pleasant bit, but that it causeth the head-ach. Which notwithstanding the luxurious

Heliogabalus.

Emperour could never taste, though he had at his Table many a Phœnicopterus, yet had he not one Phœnix; for though he expected and attempted it, we read not in *Lampridius* that he performed it; and considering the unity thereof, it was a vain design, that is, to destroy any species, or mutilate the great accomplishment of six days. And although some

conceive, and it may seem true, that there is in man a natural possibility to destroy the world in one generation, that is, by a general conspire to know no woman themselves, and disable all others also: yet will this never be effected. And therefore *Cain* after he had killed *Abel*, were there no other woman living, could not have also destroyed *Eve*: which although he had a natural power to effect, yet the execution thereof, the providence of God would have resisted: for that would have imposed another creation upon him, and to have animated a second Rib of *Adam*. CHAP. XII

CHAPTER XIII

Of Frogs, Toads, and Toad-stone.

CONCERNING the venomous Urine of Toads, of the stone in the Toads head, and of the generation of Frogs, conceptions are entertained which require consideration. And first, that a Toad pisseth, and this way diffuseth its venome, is generally received, not only with us, but also in other parts; for so hath *Scaliger* observed in his Comment, *Aversum urinam reddere ob oculos persecutoris perniciosam ruricolis persuasum est*; and *Mathiolus* hath also a passage, that a Toad communicates its venome, not only by Urine, but by the humidity and slaver of its mouth; which notwithstanding strictly understood, may admit of examination: for some doubt may be made whether a Toad properly pisseth, that is distinctly and separately voideth the serous excretion: for though not only birds, but oviparous quadrupeds and Serpents have

CHAP. XIII

kidneys and ureters, and some Fishes also bladders: yet for the moist and dry excretion they seem at last to have but one vent and common place of exclusion: and with the same propriety of language, we may ascribe that action unto Crows and Kites. And this not onely in Frogs and Toads, but may be enquired in Tortoyses: that is, whether that be strictly true, or to be taken for a distinct and separate miction, when *Aristotle* affirmeth, that no oviparous animal, that is, which either spawneth or layeth Eggs, doth Urine except the Tortois.

The ground or occasion of this expression might from hence arise, that Toads are sometimes observed to exclude or spit out a dark and liquid matter behind: which we have observed to be true, and a venomous condition there may be perhaps therein, but some doubt there may be, whether this is to be called their urine: not because it is emitted aversly or backward, by both sexes, but because it is confounded with the intestinal excretions and egestions of the belly: and this way is ordinarily observed, although possible it is that the liquid excretion may sometimes be excluded without the other.

As for the stone commonly called a Toad-stone, which is presumed to be found in the head of that animal, we first conceive it not a thing impossible: nor is there any substantial reason why in a Toad there may not be found such hard and lapideous concretions. For the like we daily observe in the heads of Fishes, as Cods, Carps, and Pearches: the like also in Snails, a soft and exosseous animal, whereof in the naked and greater sort, as though she would requite the defect of a shell on their back, Nature near the head hath placed a flat white stone, or rather testaceous concre-

tion. Which though *Aldrovandus* affirms, that after dissection of many, he found but in some few: yet of the great gray Snails, I have not met with any that wanted it: and the same indeed so palpable, that without dissection it is discoverable by the hand. CHAP. XIII

Again, though it be not impossible, yet it is surely very rare: as we are induced to believe from some enquiry of our own, from the trial of many who have been deceived, and the frustrated search of *Porta*, who upon the explorement of many, could scarce find one. Nor is it only of rarity, but may be doubted whether it be of existencie, or really any such stone in the head of a Toad at all. For although *Lapidaries* and questuary enquirers affirm it, yet the Writers of Minerals and natural speculators, are of another belief: conceiving the stones which bear this name, to be a Mineral concretion; not to be found in animals, but in fields. And therefore *Bœtius* refers it to *Asteria* or some kind of *Lapis stellaris*, and plainly concludeth, *reperiuntur in agris, quos tamen alii in annosis ac qui diu in Arundinetis inter rubos sentesque delituerunt bufonis capitibus generari pertinaciter affirmant.*

Lastly, If any such thing there be, yet must it not, for ought I see, be taken as we receive it, for a loose and moveable stone, but rather a concretion or induration of the crany it self; for being of an earthy temper, living in the earth, and as some say feeding thereon, such indurations may sometimes happen. Thus when *Brassavolus* after a long search had discovered one, he affirms it was rather the forehead bone petrified, then a stone within the crany; and of this belief was *Gesner*. Which is also much confirmed from what is delivered in *Aldrovandus*, upon experiment of very many Toads, whose cranies or sculs in time grew hard, and almost

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of a stony substance. All which considered, we must with circumspection receive those stones which commonly bear this name, much less believe the traditions, that in envy to mankind they are cast out, or swallowed down by the Toad; which cannot consist with *Anatomy*, and with the rest, enforced this censure from *Bœtius*, *Ab eo tempore pro nugis habui quod de Bufonio lapide, ejusque origine traditur.*

What therefore best reconcileth these divided determinations, may be a middle opinion; that of these stones some may be mineral, and to be found in the earth; some animal, to be met with in Toads, at least by the induration of their cranies. The first are many and manifold, to be found in *Germany* and other parts; the last are fewer in number, and in substance not unlike the stones in Crabs heads. This is agreeable unto the determination of *Aldrovandus*, and is also the judgment of learned *Spigelius* in his Epistle unto *Pignorius*.

De Mineral. lib. 4. Musæi Calceolariani, Sect. 3.

But these Toadstones, at least very many thereof, which are esteemed among us, are at last found to be taken not out of Toads heads, but out of a Fishes mouth, being handsomely contrived out of the teeth of the *Lupus Marinus*, a Fish often taken in our Northern Seas, as was publickly declared by an eminent and learned Physitian. But because men are unwilling to conceive so low of their Toadstones which they so highly value, they may make some trial thereof by a candentorned hot Iron applied unto the hollow and unpolished part thereof, whereupon if they be true stones they will not be apt to burn or afford a burnt odour, which they may be apt to do, if contrived out of animal parts or the teeth of fishes.

Sir *George Ent.*

Concerning the generation of Frogs, we shall briefly

deliver that account which observation hath taught us. By Frogs I understand not such as arising from putrefaction, are bred without copulation, and because they subsist not long, are called *Temporariæ*; nor do I mean the little Frog of an excellent Parrat green, that usually sits on Trees and Bushes, and is therefore called *Ranunculus viridis*, or *arboreus*; but hereby I understand the aquatile or Water-Frog, whereof in ditches and standing plashes we may behold many millions every Spring in *England*. Now these do not as *Pliny* conceiveth, exclude black pieces of flesh, which after become Frogs; but they let fall their spawn in the water, of excellent use in Physick, and scarce unknown unto any. In this spawn of a lentous and transparent body, are to be discerned many specks, or little conglobulations, which in a small time become of deep black, a substance more compacted and terrestrious then the other; for it riseth not in distillation, and affords a powder when the white and aqueous part is exhaled. Now of this black or dusky substance is the Frog at last formed; as we have beheld, including the spawn with water in a glass, and exposing it unto the Sun. For that black and round substance, in a few days began to dilate and grow longer, after a while the head, the eyes, the tail to be discernable, and at last to become that which the Ancients called *Gyrinus*, we a *Porwigle* or Tadpole. This in some weeks after becomes a perfect Frog, the legs growing out before, and the tail wearing away, to supply the other behind; as may be observed in some which have newly forsaken the water; for in such, some part of the tail will be seen, but curtailed and short, not long and finny as before. A part provided them a while to swim and move in the water, that is, untill such time

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Amphibious Animals, such as live in both elements of land and water.

as Nature excluded legs, whereby they might be provided not only to swim in the water, but move upon the land, according to the amphibious and mixt intention of Nature, that is, to live in both. So that whoever observeth the first progression of the seed before motion, or shall take notice of the strange indistinction of parts in the Tadpole, even when it moveth about, and how successively the inward parts do seem to discover themselves, until their last perfection; may easily discern the high curiosity of Nature in these inferiour animals, and what a long line is run to make a Frog.

And because many affirm, and some deliver, that in regard it hath lungs and breatheth, a Frog may be easily drowned; though the reason be probable, I find not the experiment answerable; for fastning one about a span under water, it lived almost six days. Nor is it only hard to destroy one in water, but difficult also at land: for it will live long after the lungs and heart be out; how long it will live in the seed, or whether the spawn of this year being preserved, will not arise into Frogs in the next, might also be enquired: and we are prepared to trie.

CHAPTER XIV

Of the Salamander.

THAT a Salamander is able to live in flames, to endure and put out fire, is an assertion, not only of great antiquity, but confirmed by frequent, and not contemptible testimony. The *Egyptians* have drawn it into their Hieroglyphicks,

Aristotle seemeth to embrace it; more plainly *Nicander*, *Sarenus Sammonicus*, *Ælian* and *Pliny*, who assigns the cause of this effect: An Animal (saith he) so cold that it extinguisheth the fire like Ice. All which notwithstanding, there is on the negative, Authority and Experience; *Sextius* a Physitian, as *Pliny* delivereth, denied this effect; *Dioscorides* affirmed it a point of folly to believe it; *Galen* that it endureth the fire a while, but in continuance is consumed therein. For experimental conviction, *Mathiolus* affirmeth, he saw a Salamander burnt in a very short time; and of the like assertion is *Amatus Lusitanus*; and most plainly *Pierius*, whose words in his Hieroglyphicks are these: *Whereas it is commonly said that a Salamander extinguisheth fire, we have found by experience, that it is so far from quenching hot coals, that it dieth immediately therein.* As for the contrary assertion of *Aristotle*, it is but by hear say, as common opinion believeth, *Hæc enim (ut aiunt) ignem ingrediens, eum extinguit*; and therefore there was no absurdity in *Galen*, when as a Septical medicine he commended the ashes of a Salamander; and *Magicians* in vain from the power of this Tradition, at the burning of Towns or Houses expect a relief from Salamanders. CHAP. XIV

A corruptive Medicine destroying the parts like Arsenike.

The ground of this opinion, might be some sensible resistance of fire observed in the Salamander: which being, as *Galen* determineth, cold in the fourth, and moist in the third degree, and having also a mucous humidity above and under the skin, by vertue thereof it may a while endure the flame: which being consumed, it can resist no more. Such an humidity there is observed in Newtes, or Water-Lizards, especially if their skins be perforated or pricked. Thus will Frogs and Snails endure the Flame: thus will whites of Eggs,

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vitreous or glassie flegm extinguish a coal: thus are unguents made which protect a while from the fire: and thus beside the *Hirpini* there are later stories of men that have passed untoucht through the fire. And therefore some truth we allow in the tradition: truth according unto *Galen*, that it may for a time resist a flame, or as *Scaliger* avers, extinguish or put out a coal: for thus much will many humid bodies perform: but that it perseveres and lives in that destructive element, is a fallacious enlargement. Nor do we reasonably conclude, because for a time it endureth fire, it subdueth and extinguisheth the same, because by a cold and aluminous moisture, it is able a while to resist it: from a peculiarity of Nature it subsisteth and liveth in it.

It hath been much promoted by Stories of incombustible napkins and textures which endure the fire, whose materials are called by the name of Salamanders wool. Which many too literally apprehending, conceive some investing part, or tegument of the Salamander: wherein beside that they mistake the condition of this Animal (which is a kind of Lizard, a quadruped corticated and depilous, that is, without wool, fur, or hair) they observe not the method and general rule of nature; whereby all Quadrupeds oviparous, as Lizards, Frogs, Tortois, Chamelions, Crocodiles, are without hair, and have no covering part or hairy investment at all. And if they conceive that from the skin of the Salamander, these incremable pieces are composed; beside the experiments made upon the living, that of *Brassavolus* will step in, who in the search of this truth, did burn the skin of one dead.

Nor is this Salamanders wooll desumed from any Animal, but a Mineral substance Metaphorically so

called from this received opinion. For beside *Germanicus* his heart, and *Pyrrhus* his great Toe, which would not burn with the rest of their bodies, there are in the number of Minerals some bodies incombustible; more remarkably that which the ancients named *Asbeston*, and *Pancirollus* treats of in the Chapter of *Linum vivum*. Whereof by art were weaved Napkins, Shirts, and Coats, inconsumable by fire; and wherein in ancient times to preserve their ashes pure, and without commixture, they burnt the bodies of Kings. A Napkin hereof *Pliny* reports that *Nero* had, and the like saith *Paulus Venetus* the Emperour of *Tartary* sent unto Pope *Alexander*; and also affirms that in some part of *Tartary* there were Mines of Iron whose filaments were weaved into incombustible cloth. Which rare Manufacture, although delivered for lost by *Pancirollus*, yet *Salmuth* his Commentator affirmeth, that one *Podocaterus* a Cyprian, had shewed the same at *Venice*; and his materials were from *Cyprus*, where indeed *Dioscorides* placeth them; the same is also ocularly confirmed by *Vives* upon *Austin*, and *Maiolus* in his Colloquies. And thus in our days do men practise to make long-lasting Snasts for Lamps out of Alumen plumosum; and by the same we read in *Pausanius*, that there always burnt a Lamp before the Image of *Minerva*.

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Plutarch. Suetonius.

CHAPTER XV

Of the Amphisbæna.

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THAT the Amphisbæna, that is, a smaller kind of Serpent, which moveth forward and backward, hath two heads, or one at either extream, was affirmed first by *Nicander*, and after by many others, by the Author of the Book *De Theriaca ad Pisonem*, ascribed unto *Galen*; more plainly *Pliny*, *Geminum habet caput, tanquam parum esset uno ore effundi venenum*: but *Ælian* most confidently, who referring the conceit of *Chimera* and *Hydra* unto Fables, hath set down this as an undeniable truth.

Whereunto while men assent, and can believe a bicipitous conformation in any continued species, they admit a gemination of principle parts, not naturally discovered in any Animal. True it is that other parts in Animals are not equal; for some make their progression with many legs, even to the number of an hundred, as *Juli*, *Scolopendræ*, or such as are termed *Centipedes*: some fly with two wings, as Birds and many Insects, some with four, as all farinaceous or mealy-winged Animals, as Butterflies, and Moths: all vaginipennous or sheath-winged Insects, as Beetles and Dorrs. Some have three Testicles, as *Aristotle* speaks of the Buzzard; and some have four stomachs, as horned and ruminating Animals; but for the principle parts, the Liver, Heart, and especially the brains; regularly they are but one in any kind or species whatsoever.

And were there any such species or natural kind of animal, it would be hard to make good those six

positions of body, which according to the three dimensions are ascribed unto every Animal: that is, *infra*, *supra*, *ante*, *retro*, *dextrosum*, *sinistrosum*: for if (as it is determined) that be the anterior and upper part, wherein the senses are placed, and that the posterior and lower part which is opposite thereunto, there is no inferiour or former part in this Animal; for the senses being placed at both extréams, doth make both ends anterior, which is impossible; the terms being Relative, which mutually subsist, and are not without each other. And therefore this duplicity was ill contrived to place one head at both extreams, and had been more tolerable to have setled three or four at one. And therefore also Poets have been more reasonable then Philosophers, and *Geryon* or *Cerberus* less monstrous than *Amphisbæna*. CHAP. XV

Again, if any such thing there were, it were not to be obtruded by the name of *Amphisbæna*, or as an Animal of one denomination; for properly that Animal is not one, but multiplicious or many, which hath a duplicity or gemination of principal parts. And this doth *Aristotle* define, when he affirmeth a monster is to be esteemed one or many, according to its principle, which he conceived the heart, whence he derived the original of Nerves, and thereto ascribed many acts which Physitians assign unto the brain: and therefore if it cannot be called one, which hath a duplicity of hearts in his sense, it cannot receive that appellation with a plurality of heads in ours. And this the practice of Christians hath acknowledged, who have baptized these geminous births, and double connascencies with several names, as conceiving in them a distinction of souls, upon the divided execution of their functions; that is, while one wept, the other laughing; while one

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was silent, the other speaking; while one awaked, the other sleeping; as is declared by three remarkable examples in *Petrarch*, *Vincentius* and the *Scottish* History of *Buchanan*.

It is not denied there have been bicipitous Serpents with the head at each extream, for an example hereof we find in *Aristotle*, and of the like form in *Aldrovandus* we meet with the Icon of a Lizzard; and of this kind perhaps might that *Amphisbæna* be, the picture whereof *Cassianus Putcus* shewed unto the learned *Faber*. Which double formations do often happen unto multiparous generations, more especially that of Serpents; whose productions being numerous, and their Eggs in chains or links together (which sometime conjoin and inoculate into each other) they may unite into various shapes and come out in mixed formations. But these are monstrous productions, beside the intention of Nature, and the statutes of generation, neither begotten of like parents, nor begetting the like again, but irregularly produced, do stand as Anomalies in the general Book of Nature. Which being shifts and forced pieces, rather then genuine and proper effects, they afford us no illation; nor is it reasonable to conclude, from a monstrosity unto a species, or from accidental effects, unto the regular works of Nature.

Lastly, The ground of the conceit was the figure of this Animal, and motion oft-times both ways; for described it is to be like a worm, and so equally framed at both extreams, that at an ordinary distance it is no easie matter to determine which is the head; and therefore some observing them to move both ways, have given the appellation of heads unto both extreams, which is no proper and warrantable denomination; for many Animals with one head, do ordinarily perform

both different and contrary Motions; Crabs move sideling, Lobsters will swim swiftly backward, Worms and Leeches will move both ways; and so will most of those Animals, whose bodies consist of round and annulary fibers, and move by undulation; that is, like the waves of the Sea, the one protruding the other, by inversion whereof they make a backward Motion. CHAP. XV

Upon the same ground hath arisen the same mistake concerning the Scolopendra or hundred-footed Insect, as is delivered by *Rhodiginus* from the Scholiast of *Nicander*: *Dicitur à Nicandro, ἀμφικαρὴς, id est dicephalus aut biceps fictum vero, quoniam retrorsum (ut scribit Aristoteles, arrepit,* observed by *Aldrovandus*, but most plainly by *Muffetus*, who thus concludeth upon the Text of *Nicander*: *Tamen pace tanti authoris dixerim, unicum illi duntaxat caput licet pari facilitate, prorsum capite, retrorsum ducente cauda, incedat, quod Nicandro aliisque imposuisse dubito*: that is, under favour of so great an Author, the Scopolendra hath but one head, although with equal facility it moveth forward and backward, which I suspect deceived *Nicander*, and others.

And therefore we must crave leave to doubt of this double-headed Serpent until we have the advantage to behold or have an iterated ocular testimony concerning such as are sometimes mentioned by *American* relators; and also such as *Cassianus Puteus* shewed in a picture to *Johannes Faber*; and that which is set down under the name of *Amphisbœna Europœa* in his learned discourse upon *Hernandez* his History of *America*.

CHAPTER XVI

Of the Viper.

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THAT the young Vipers force their way through the bowels of their Dam, or that the female Viper in the act of generation bites off the head of the male, in revenge whereof the young ones eat through the womb and belly of the female, is a very ancient tradition. In this sense entertained in the Hieroglyphicks of the *Egyptians*; affirmed by *Herodotus*, *Nicander*, *Pliny*, *Plutarch*, *Ælian*, *Jerome*, *Basil*, *Isidore*, seems countenanced by *Aristotle*, and his Scholar *Theophrastus*: from hence is commonly assigned the reason why the *Romans* punished *Parricides* by drowning them in a Sack with a Viper. And so perhaps upon the same opinion the men of *Melita* when they saw a Viper upon the hand of *Paul*, said presently without conceit of any other sin, *No doubt this man is a murderer, who though he have escaped the Sea, yet vengeance suffereth him not to live*: that is, he is now paid in his own way, the parricidous Animal and punishment of murderers is upon him. And though the tradition were currant among the Greeks, to confirm the same the Latine name is introduced, *Vipera quasi vi pariat*; That passage also in the Gospel, *O ye generation of Vipers!* hath found expositions which countenance this conceit. Notwithstanding which authorities, transcribed relations and conjectures, upon enquiry we find the same repugnant unto experience and reason.

And first, it seems not only injurious unto the providence of Nature, to ordain a way of production which should destroy the producer, or contrive the

continuation of the species by the destruction of the Continuator; but it overthrows and frustrates the great Benediction of God, *God blessed them, saying, Be fruitful and multiply.* Now if it be so ordained that some must regularly perish by multiplication, and these be the fruits of fructifying in the Viper; it cannot be said that God did bless, but curse this Animal: *Upon thy belly shalt thou go, and dust shalt thou eat all thy life*, was not so great a punishment unto the Serpent after the fall, as *encrease, be fruitful and multiply*, was before. This were to confound the Maledictions of God, and translate the curse of the Woman upon the Serpent: that is, *in dolore paries, in sorrow shalt thou bring forth*; which being proper unto the Woman, is verified best in the Viper, whose delivery is not only accompanied with pain, but also with death it self. And lastly, it overthrows the careful course, and parental provision of Nature, whereby the young ones newly excluded are sustained by the Dam, and protected until they grow up to a sufficiency for themselves. All which is perverted in this eruptive generation: for the Dam being destroyed, the younglings are left to their own protection: which is not conceivable they can at all perform, and whereof they afford us a remarkable confirmance many days after birth. For the young one supposed to break through the belly of the Dam, will upon any fright for protection run into it; for then the old one receives them in at her mouth, which way the fright being past, they will return again, which is a peculiar way of refuge; and although it seem strange, is avowed by frequent experience and undeniable testimony.

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As for the experiment, although we have thrice attempted it, it hath not well succeeded; for though

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we fed them with Milk, Bran, Cheese, etc., the females always died before the young ones were mature for this eruption; but rest sufficiently confirmed in the experiments of worthy enquirers. Wherein to omit the ancient conviction of *Apollonius*, we shall set down some few of Modern Writers. The first, of *Amatus Lusitanus* in his Comment upon *Dioscorides*, *Vidimus nos viperas prægnantes inclusas pixidibus parere, quæ inde ex partu nec mortuæ, nec visceribus perforatæ manserunt.* The second is that of *Scaliger*, *Viperas ab impatientibus moræ fœtibus numerosissimis rumpi atque interire falsum esse scimus, qui in Vincentii Camerini circulatoris lignea theca vidimus, enatas viperellas, parente salva.* The last and most plain of *Franciscus Bustamantinus*, a *Spanish* Physitian of *Alcala de Henares*, whose words in his third *de Animantibus Scripturæ*, are these: *Cum vero per me et per alios hæc ipsa disquisissem servata Viperina progenie, etc.*: that is, when by my self and others I had enquired the truth hereof, including Vipers in a glass, and feeding them with Cheese and Bran, I undoubtedly found that the Viper was not delivered by the tearing of her bowels; but I beheld the young ones excluded by the passage of generation, near the orifice of the seidge. Whereto we might also add the ocular confirmation of *Lacuna* upon *Dioscorides*, *Ferdinandus Imperatus*, and that learned Physician of *Naples*, *Aurelius Severinus.*

That Vipers exclude their young ones by an ordinary passage, as other viviparous creatures.

Now although the Tradition be untrue, there wanted not many grounds which made it plausibly received. The first was a favourable indulgence and special contrivance of Nature; which was the conceit of *Herodotus*, who thus delivereth himself. Fearful Animals, and such as serve for food, Nature hath made

more fruitful; but upon the offensive and noxious kind, she hath not conferred fertility. So the Hare that becometh a prey unto Man, unto Beasts, and Fowls of the air, is fruitful even to superfætation; but the Lion, a fierce and ferocious Animal hath young ones but seldom, and also but one at a time; Vipers indeed although destructive are fruitful; but lest their number should increase, Providence hath contrived another way to abate it: for in copulation the female bites off the head of the male, and the young ones destroy the mother. But this will not consist with reason, as we have declared before. And if we more nearly consider the condition of Vipers and noxious Animals we shall discover an higher provision of Nature: how although in their paucity she hath not abridged their malignity, yet hath she notoriously effected it by their secession or latitancy. For not only offensive insects, as Hornets, Wasps, and the like; but sanguineous corticated Animals, as Serpents, Toads and Lizzards, do lie hid and betake themselves to coverts in the Winter. Whereby most Countries enjoying the immunity of *Ireland* and *Candie*, there ariseth a temporal security from their venoms; and an intermission of their mischiefs, mercifully requiting the time of their activities.

A second ground of this effect, was conceived the justice of Nature, whereby she compensates the death of the father by the matricide or murder of the mother: and this was the expression of *Nicander*. But the cause hereof is as improbable as the effect; and were indeed an improvident revenge in the young ones, whereby in consequence, and upon defect of provision they must destroy themselves. And whereas he expresseth this decollation of the male by so full a

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term as ἀποκόπτειν, that is, to cut or lop off, the act is hardly conceiveable; for the Viper hath but two considerable teeth, and those so disposed, so slender and needle-pointed, that they are apter for puncture then any act of incision. And if any like action there be, it may be only some fast retention or sudden compression in the *Orgasmus* or fury of their lust; according as that expression of *Horace* is construed concerning *Lydia* and *Telephus*.

——Sive puer furens,
Impressit memorem dente labris notam.

Others ascribe this effect unto the numerous conception of the Viper; and this was the opinion of *Theophrastus*. Who though he denieth the exesion or forcing through the belly, conceiveth nevertheless that upon a full and plentiful impletion there may perhaps succeed a disruption of the matrix, as it happeneth sometimes in the long and slender fish *Acus*. Now although in hot Countries, and very numerous conceptions, in the Viper or other Animals, there may sometimes ensue a dilaceration of the genital parts; yet is this a rare and contingent effect, and not a natural and constant way of exclusion. For the wise Creator hath formed the organs of Animals unto their operations, and in whom he ordaineth a numerous conception, in them he hath prepared convenient receptacles, and a sutable way of exclusion.

Needle-fish, found sometimes upon the Sea-shore, consisting of four lines unto the vent, and six from thence unto the head.

Others do ground this disruption upon their continued or protracted time of delivery, presumed to last twenty days; whereat excluding but one a day, the latter brood impatient, by a forcible proruption anticipate their period of exclusion; and this was the assertion of *Pliny*, *Cæteri tarditatis impatientes prorumpunt latera*,

occisâ parente; which was occasioned upon a mistake of the Greek Text in *Aristotle*, τίκτει δὲ ἐν μία ἡμέρᾳ καθ' ἕν, τίκτει δὲ πλείω ἢ εἴκοσιν, which are literally thus translated, *Parit autem una die secundum unum, parit autem plures quam viginti*, and may be thus Englished, *She bringeth forth in one day, one by one, and sometimes more than twenty*: and so hath *Scaliger* rendered it, *Sigillatim parit absolvit, una die, interdum plures quam viginti*: But *Pliny*, whom *Gaza* followeth, hath differently translated it, *Singulos diebus singulis parit, numero ferè viginti;* whereby he extends the exclusion unto twenty days, which in the textuary sense is fully accomplished in one. CHAP. XVI

But what hath most advanced it, is a mistake in another text of *Aristotle*, which seemeth directly to determine this disruption, τίκτει μικρὰ ἐχίδια ἐν ὑμέσιν, αἱ περιρρήγνυνται τριταῖοι, ἐνίοτε δὲ καὶ ἔσωθεν διαφαγόντα αὐτὰ ἐξέρχεται, which *Gaza* hath thus translated, *Parit catulos abvolutos membranis quæ tertio die rumpuntur, evenit interdum ut qui in utero adhuc sunt abrosis membranis prorumpant.* Now herein probably *Pliny*, and many since have been mistaken; for the disruption of the membranes or skins, which include the young ones, conceiving a dilaceration of the matrix and belly of the Viper: and concluding from a casual dilaceration, a regular and constant disruption.

As for the Latine word *Vipera*, which in the Etymologie of *Isidore* promoteth this conceit; more properly it may imply *vivipera*. For whereas other Serpents lay Eggs, the Viper excludeth living Animals; and though the *Cerastes* be also viviparous, and we have found formed Snakes in the belly of the *Cicilia* or Slow-worm; yet may the Viper emphatically bear the name. For the notation or Etymology is not of

CHAP. XVI necessity adequate unto the name; and therefore though animal be deduced from *anima*, yet are there many animations beside, and Plants will challenge a right therein as well as sensible Creatures.

As touching the Text of Scripture, and compellation of the *Pharisees*, by Generation of Vipers, although constructions be made hereof conformable to this Tradition; and it may be plausibly expounded, that out of a viperous condition, they conspired against their Prophets, and destroyed their spiritual parents; yet (as *Jansenius* observeth) *Gregory* and *Jerome*, do make another construction; apprehending thereby what is usually implied by that Proverb, *Mali corvi, malum ovum*; that is, of evil parents, an evil generation, a posterity not unlike their majority; of mischievous progenitors, a venomous and destructive progeny.

And lastly, Concerning the Hieroglyphical account, according to the Vulgar conception set down by *Orus Apollo*, the Authority thereof is only Emblematical; for were the conception true or false, to their apprehensions, it expressed filial impiety. Which strictly taken, and totally received for truth, might perhaps begin, but surely promote this conception.

More doubtful assertions have been raised of no Animal then the Viper, as we have dispersedly noted: and *Francisco Redi* hath amply discovered in his noble observations of Vipers; from good reasons and iterated experiments affirming, that a Viper containeth no humour, excrement, or part which either dranke or eat, is able to kill any: that the *remorsores* or dog-teeth, are not more than two in either sex: that these teeth are hollow, and though they bite and prick therewith, yet are they not venomous, but only open a way and entrance unto the poyson, which notwith-

standing is not poysonous except it touch or attain unto the bloud. And that there is no other poison in this Animal, but only that almost insipid liquor like oyl of Almonds, which stagnates in the sheaths and cases that cover the teeth; and that this proceeds not from the bladder of gall, but is rather generated in the head, and perhaps demitted and sent from thence into these cases by salival conducts and passages, which the head communicateth unto them. CHAP. XVI

CHAPTER XVII

Of Hares.

THE double sex of single Hares, or that every Hare is both male and female, beside the vulgar opinion, was the affirmative of *Archelaus*, of *Plutarch*, *Philostratus*, and many more. Of the same belief have been the Jewish *Rabbins*; The same is likewise confirmed from the Hebrew word; Arnabeth. which, as though there were no single males of that kind, hath only obtained a name of the feminine gender. As also from the symbolical foundation of its *Levit.* 11. prohibition in the law, and what vices therein are figured; that is, not only pusillanimity and timidity from its temper, feneration or usury from its fœcundity and superfetation; but from this mixture of sexes, unnatural venery and degenerous effemination. Nor are there hardly any who either treat of mutation or mixtion of sexes, who have not left some mention of this point; some speaking positively, others dubiously, and most resigning it unto the enquiry of the Reader. Now hereof to speak distinctly, they must be male and

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female by mutation and succession of sexes; or else by composition, mixture or union thereof.

Transmutation of Sexes, viz. of Women into Men, granted.

As for the mutation of sexes, or transition into one another, we cannot deny it in Hares, it being observable in Man. For hereof beside *Empedocles* or *Tiresias*, there are not a few examples: and though very few, or rather none which have emasculated or turned women, yet very many who from an esteem or reality of being Women have infallibly proved Men. Some at the first point of their menstruous eruptions, some in the day of their marriage, others many years after: which occasioned disputes at Law, and contestations concerning a restore of the dowry. And that not only mankind, but many other Animals may suffer this transexion, we will not deny, or hold it at all impossible: although I confess by reason of the postick and backward position of the feminine parts in quadrupedes, they can hardly admit the substitution of a protrusion, effectual unto masculine generation; except it be in Retromingents, and such as couple backward.

Nor shall we only concede the succession of sexes in some, but shall not dispute the transition of reputed species in others; that is, a transmutation, or (as *Paracelsians* term it) Transplantation of one into another. Hereof in perfect Animals of a congenerous seed, or near affinity of natures, examples are not unfrequent, as in Horses, Asses, Dogs, Foxes, Pheasants, Cocks, etc. but in imperfect kinds, and such where the discrimination of sexes is obscure, these transformations are more common; and in some within themselves without commixtion, as particularly in Caterpillars or Silkworms, wherein there is a visible and triple transfiguration. But in Plants, wherein there is no distinction of sex, these transplantations are conceived more

obvious then any; as that of Barley into Oats, of Wheat into Darnel; and those grains which generally arise among Corn, as Cockle, Aracus, Ægilops, and other degenerations; which come up in unexpected shapes, when they want the support and maintenance of the primary and master-forms. And the same do some affirm concerning other Plants in less analogy of figures; as the mutation of Mint into Cresses, Basil into Serpoile, and Turneps into Radishes. In all which, as *Severinus* conceiveth, there may be equivocal seeds and Hermaphroditical principles, which contain the radicality and power of different forms; thus in the seed of Wheat there lieth obscurely the seminality of Darnel, although in a secondary or inferiour way, and at some distance of production; which nevertheless if it meet with convenient promotion, or a conflux and conspiration of causes more powerful then the other, it then beginneth to edifie in chief, and contemning the superintendent form, produceth the signatures of its self. CHAP. XVII

In Idea Medicinæ Philosophicæ.

Now therefore although we deny not these several mutations, and do allow that Hares may exchange their sex, yet this we conceive doth come to pass but sometimes, and not in that vicissitude or annual alteration as is presumed. That is, from imperfection to perfection, from perfection to imperfection; from female unto male, from male to female again, and so in a circle to both without a permansion in either. For beside the inconceivable mutation of temper, which should yearly alternate the sex, this is injurious unto the order of nature, whose operations do rest in the perfection of their intents; which having once attained, they maintain their accomplished ends, and relapse not again into their progressional imperfections. So if in

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the minority of natural vigor, the parts of seminality take place; when upon the encrease or growth thereof the masculine appear, the first design of nature is atchieved, and those parts are after maintained.

But surely it much impeacheth this iterated transexion of Hares, if that be true which *Cardan* and other Physicians affirm, that Transmutation of sex is only so in opinion; and that these transfeminated persons were really men at first; although succeeding years produced the manifesto or evidence of their virilities. Which although intended and formed, was not at first excluded: and that the examples hereof have undergone no real or new transexion, but were Androgynally born, and under some kind of *Hermaphrodites*. For though *Galen* do favour the opinion, that the distinctive parts of sexes are only different in Position, that is, inversion or protrusion; yet will this hardly be made out from the Anatomy of those parts. The testicles being so seated in the female, that they admit not of protrusion; and the neck of the matrix wanting those parts which are discoverable in the organ of virility.

The second and most received acception, is, that Hares are male and female by conjunction of both sexes; and such as are found in mankind, Poetically called Hermaphrodites; supposed to be formed from the equality, or *non victorie* of either seed; carrying about them the parts of Man and Woman; although with great variety in perfection, site and ability; not only as *Aristotle* conceived, with a constant impotency in one; but as later observers affirm, sometimes with ability of either venery. And therefore the providence of some Laws have thought good, that at the years of maturity they should elect one

sex, and the errors in the other should suffer a severer punishment. Whereby endeavouring to prevent incontinency, they unawares enjoyned perpetual chastity; for being executive in both parts, and confined unto one, they restrained a natural power, and ordained a partial virginity. *Plato* and some of the Rabbins proceeded higher; who conceived the first Man an Hermaphrodite; and *Marcus Leo* the learned *Jew*, in some sense hath allowed it; affirming that *Adam* in one supposition without division, contained both Male and Female. And therefore whereas it is said in the text, That God created man in his own Image, in the Image of God created he him, male and female created he them: applying the singular and plural unto *Adam*, it might denote, that in one substance, and in himself he included both sexes, which was after divided, and the female called Woman. The opinion of *Aristotle* extendeth farther, from whose assertion all men should be Hermaphrodites; for affirming that Women do not spermatize, and confer a place or receptacle rather then essential principles of generation, he deductively includes both sexes in mankind; for from the father proceed not only males and females, but from him also must Hermaphroditical and masculo-feminine generations be derived, and a commixtion of both sexes arise from the seed of one. But the Schoolmen have dealt with that sex more hardly then any other; who though they have not much disputed their generation, yet have they controverted their Resurrection, and raisen a querie, whether any at the last day should arise in the sex of Women; as may be observed in the supplement of *Aquinas*.

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Now as we must acknowledge this Androgynal condition in Man, so can we not deny the like doth

Consisting of man and woman.

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happen in beasts. Thus do we read in *Pliny*, that *Neroes* Chariot was drawn by four Hermaphroditical Mares, and *Cardan* affirms he also beheld one at *Antwerp*. And thus may we also concede, that Hares have been of both sexes, and some have ocularly confirmed it; but that the whole species or kind should be bisexous or double-sexed, we cannot affirm, who have found the parts of male and female respectively distinct and single in any wherein we have enquired: And the like success had *Bacchinus* in such as he dissected. And whereas it is conceived, that being an harmless Animal and delectable food unto man, nature hath made them with double sexes, that actively and passively performing they might more numerously increase; we forget an higher providence of nature whereby she especially promotes the multiplication of Hares, which is by superfetation; that is, a conception upon a conception, or an improvement of a second fruit before the first be excluded; preventing hereby the usual intermission and vacant time of generation; which is very common and frequently observable in Hares, mentioned long ago by *Aristotle*, *Herodotus*, and *Pliny*; and we have often observed, that after the first cast, there remain successive conceptions, and other younglings very immature, and far from their term of exclusion.

Bacch. De Hermaphroditis.

Superfetation possible in women, and that unto a perfect birth.

Nor need any man to question this in Hares, for the same we observe doth sometime happen in Women; for although it be true, that upon conception the inward orifice of the matrix exactly closeth, so that it commonly admitteth nothing after; yet falleth it out sometime, that in the act of coition, the avidity of that part dilateth it self, and receiveth a second burden; which if it happen to be near in time unto the

first, they do commonly both proceed unto perfection, and have legitimate exclusions, periodically succeeding each other. But if the superfetation be made with considerable intermission, the latter most commonly proves abortive; for the first being confirmed, engrosseth the aliment from the other. However therefore the project of *Julia* seem very plausible, and that way infallible, when she received not her passengers, before she had taken in her lading, yet was there a fallibility therein: nor indeed any absolute security in the policy of adultery after conception. For the Matrix (which some have called another Animal within us, and which is not subjected unto the law of our will) after reception of its proper Tenant, may yet receive a strange and spurious inmate. As is confirmable by many examples in *Pliny*; by *Larissæa* in *Hippocrates* and that merry one in *Plautus* urged also by *Aristotle*: that is, of *Iphicles* and *Hercules*, the one begat by *Jupiter*, the other by *Amphitryon* upon *Alcmæna* as also in those super-conceptions, where one child was like the father, the other like the adulterer, the one favoured the servant, the other resembled the master. CHAP. XVII

Now the grounds that begat, or much promoted the opinion of a double sex in Hares, might be some little bags or tumours, at first glance representing stones or Testicles, to be found in both sexes about the parts of generation; which men observing in either sex, were induced to believe a masculine sex in both. But to speak properly, these are no Testicles or parts official unto generation, but glandulous substances that seem to hold the nature of Emunctories. For herein may be perceived slender perforations, at which may be expressed a black and fæculent matter. If therefore

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from these we shall conceive a mixtion of sexes in Hares, with fairer reason we may conclude it in Bevers; whereof both sexes contain a double bag or Tumour in the groin, commonly called the Cod of *Castor*, as we have delivered before.

Another ground were certain holes or cavities observable about the siedge; which being perceived in Males, made some conceive there might be also a fœminine nature in them. And upon this very ground, the same opinion hath passed upon the Hyæna, and is declared by *Aristotle*, and thus translated by *Scaliger*; *Quod autem aiunt utriusque sexus habere genitalia, falsum est, quod videtur esse fœmineum sub cauda est simile figura fœminino, verum pervium non est*; and thus is it also in Hares, in whom these holes, although they seem to make a deep cavity, yet do they not perforate the skin, nor hold a community with any part of generation: but were (as *Pliny* delivereth) esteemed the marks of their age, the number of those deciding their number of years. In which opinion what truth there is we shall not contend; for if in other Animals there be authentick notations, if the characters of years be found in the horns of Cows, or in the Antlers of Deer; if we conjecture the age of Horses from joints in their docks, and undeniably presume it from their teeth; we cannot affirm, there is in this conceit, any affront unto nature; although who ever enquireth shall find no assurance therein.

The last foundation was Retromingency or pissing backward; for men observing both sexes to urine backward, or aversly between their legs, they might conceive there was a fœminine part in both; wherein they are deceived by the ignorance of the just and proper site of the Pizzel, or part designed unto the Excretion

of urine; which in the Hare holds not the common position, but is aversly seated, and in its distention enclines unto the Coccix or Scut. Now from the nature of this position, there ensueth a necessity of Retrocopulation, which also promoteth the conceit: for some observing them to couple without ascension, have not been able to judge of male or female, or to determine the proper sex in either. And to speak generally, this way of copulation is not appropriate unto Hares, nor is there one, but many ways of coition: according to divers shapes and different conformations. For some couple laterally or sidewise, as Worms: some circularly or by complication, as Serpents: some pronely, that is, by contaction of the ventral parts in both, as Apes, Porcupines, Hedgehogs, and such as are termed Mollia, as the Cuttle-fish and the Purple; some mixtly, that is, the male ascending the female, or by application of the ventral parts of the one, unto the postick parts of the other, as most Quadrupeds: Some aversly, as all Crustaceous Animals, Lobsters, Shrimps, and Crevises, and also Retromingents, as Panthers, Tygers, and Hares. This is the constant Law of their Coition, this they observe and transgress not: onely the vitiosity of man hath acted the varieties hereof; nor content with a digression from sex or species, hath in his own kind run thorow the Anomalies of venery; and been so bold, not only to act, but represent to view, the irregular ways of Lust.

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CHAPTER XVIII

Of Moles, or Molls.

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THAT Moles are blind and have no eyes, though a common opinion, is received with much variety; some affirming only they have no sight, as *Oppianus*, the Proverb *Talpa Cœcior*, and the word *σπαλαχία*, or *Talpitas*, which in *Hesychius* is made the same with *Cœcitas*: some that they have eyes, but no sight, as the text of *Aristotle* seems to imply; some neither eyes nor sight, as *Albertus*, *Pliny*, and the vulgar opinion; some both eyes and sight, as *Scaliger*, *Aldrovandus*, and some others. Of which opinions the last with some restriction, is most consonant unto truth: for that they have eyes in their head is manifest unto any, that wants them not in his own: and are discoverable, not only in old ones, but as we have observed in young and naked conceptions, taken out of the belly of the Dam. And he that exactly enquires into the cavity of their cranies, may perhaps discover some propagation of nerves communicated unto these parts. But that the humours together with their coats are also distinct (though *Galen* seem to affirm it) transcendeth our discovery; for separating these little Orbs, and including them in magnifying Glasses, we discerned no more then *Aristotle* mentions, *τῶν ὀφθαλμῶν μέλαινα*, that is, a black humour, nor any more if they be broken. That therefore they have eyes we must of necessity affirm; but that they be comparatively incomplete we need not to deny: So *Galen* affirms the parts of generation in women are imperfect, in respect of those of

men, as the eyes of Moles in regard of other Animals; So *Aristotle* terms them πηρουμένους, which *Gaza* translates *Oblæsos*, and *Scaliger* by a word of imperfection *inchoatos*. CHAP. XVIII

Now as that they have eyes is manifest unto sense, so that they have sight not incongruous unto reason; if we call not in question the providence of this provision, that is, to assign the Organs, and yet deny the Office, to grant them eyes and withhold all manner of vision. For as the inference is fair, affirmatively deduced from the action to the Organ, that they have eyes because they see; so is it also from the organ to the action, that they have eyes, therefore some sight designed, if we take the intention of Nature in every species, and except the casual impediments, or morbosities in individuals. But as their eyes are more imperfect then others, so do we conceive of their sight or act of vision, for they will run against things, and hudling forwards fall from high places. So that they are not blind, nor yet distinctly see; there is in them no Cecity, yet more then a Cecutiency; they have sight enough to discern the light, though not perhaps to distinguish of objects or colours; so are they not exactly blind, for light is one object of vision. And this (as *Scaliger* observeth) might be as full a sight as Nature first intended, for living in darkness under the earth, they had no further need of eyes then to avoid the light; and to be sensible when ever they lost that darkness of earth, which was their natural confinement. And therefore however Translators do render the word of *Aristotle* or *Galen*, that is, *imperfectos oblæsos* or *inchoatos*, it is not much considerable; for their eyes are sufficiently begun to finish this action, and competently perfect for this imperfect Vision.

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And lastly, although they had neither eyes nor sight, yet could they not be termed blind. For blindness being a privative term unto sight, this appellation is not admittible in propriety of speech, and will overthrow the doctrine of privations; which presuppose positive forms or habits, and are not indefinite negations, denying in all subjects, but such alone wherein the positive habits are in their proper Nature, and placed without repugnancy. So do we improperly say a Mole is blind, if we deny it the Organs or a capacity of vision from its created Nature; so when the text of *John* had said, that person was blind from his nativity, whose cecity our Saviour cured, it was not warrantable in *Nonnus* to say he had no eyes at all, as in the judgment of *Heinsius*, he describeth in his paraphrase; and as some ancient Fathers affirm, that by this miracle they were created in him. And so though the sense may be accepted, that Proverb must be candidly interpreted, which maketh fishes Mute; and calls them silent which have no voice in Nature.

Now this conceit is erected upon a misapprehension or mistake in the symtomes of vision; men confounding abolishment, diminution and depravement, and naming that an abolition of sight, which indeed is but an abatement. For if vision be abolished, it is called *cæcitas*, or blindness; if depraved and receive its objects erroneously, Hallucination; if diminished, *hebetudo visus*, *caligatio*, or dimness. Now instead of a diminution or imperfect vision in the Mole, we affirm an abolition or total privation; instead of a caligation or dimness, we conclude a cecity or blindness. Which hath been frequently inferred concerning other Animals; so some affirm the Water-Rat is blind, so *Sammonicus* and *Nicander* do call the Mus-Araneus the shrew or

Ranny, blind: And because darkness was before light, the *Ægyptians* worshipped the same. So are *Cæciliæ* or Slow-worms accounted blind, and the like we affirm proverbially of the Beetle; although their eyes be evident, and they will flye against lights, like many other Insects, and though also *Aristotle* determines, that the eyes are apparent in all flying Insects, though other senses be obscure, and not perceptible at all. And if from a diminution we may infer a total privation, or affirm that other Animals are blind which do not acutely see, or comparatively unto others, we shall condemn unto blindness many not so esteemed; for such as have corneous or horney eyes, as Lobsters and crustaceous Animals, are generally dim-sighted; all Insects that have *antennæ*, or long horns to feel out their way, as Butterflyes and Locusts; or their forelegs so disposed, that they much advance before their heads, as may be observed in Spiders; and if the Eagle were judge, we might be blind our selves. The expression therefore of Scripture in the story of *Jacob* is surely with circumspection: And it came to pass when *Jacob* was old, and his eyes were dim, *quando caligarunt oculi*, saith *Jerome* and *Tremellius*, which are expressions of diminution, and not of absolute privation. CHAP. XVIII

Other concerns there are of Molls, which though not commonly opinioned are not commonly enough considered: As the peculiar formation of their feet, the slender *ossa Iugalia*, and Dogteeth, and how hard it is to keep them alive out of the Earth: As also the ferity and voracity of these animals; for though they be contented with Roots, and stringy parts of Plants, or Wormes under ground, yet when they are above it will sometimes tear and eat one another, and in a large glass wherein a Moll, a Toad, and a Viper were in-

CHAP. XVIII closed, we have known the Moll to dispatch them and to devour a good part of them both.

CHAPTER XIX

Of Lampries.

WHETHER Lampries have nine eyes, as is received, we durst refer it unto *Polyphemus*, who had but one, to judge it. An error concerning eyes, occasioned by the error of eyes; deduced from the appearance of diverse cavities or holes on either side, which some call eyes that carelessly behold them; and is not only refutable by experience, but also repugnant unto Reason. For beside the monstrosity they fasten unto Nature, in contriving many eyes, who hath made but two unto any Animal, that is, one of each side, according to the division of the brain; it were a superfluous inartificial act to place and settle so many in one plane; for the two extreams would sufficiently perform the office of sight without the help of the intermediate eyes, and behold as much as all seven joyned together. For the visible base of the object would be defined by these two; and the middle eyes, although they behold the same thing, yet could they not behold so much thereof as these; so were it no advantage unto man to have a third eye between those two he hath already; and the fiction of *Argus* seems more reasonable then this; for though he had many eyes, yet were they placed in circumference and positions of advantage, and so are they placed in several lines in Spiders.

Again, These cavities which men call eyes are seated

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out of the head, and where the Gils of other fish are placed; containing no Organs of sight, nor having any Communication with the brain. Now all sense proceeding from the brain, and that being placed (as *Galen* observeth) in the upper part of the body, for the fitter situation of the eyes, and conveniency required unto sight; it is not reasonable to imagine that they are any where else, or deserve that name which are seated in other parts. And therefore we relinquish as fabulous what is delivered of *Sternopthalmi*, or men with eyes in their breast, and when it is said by *Solomon*, A wise mans eyes are in his head, it is to be taken in a second sense, and affordeth no objection. True it is that the eyes of Animals are seated with some difference, but in sanguineous animals in the head, and that more forward then the ear or hole of hearing. In quadrupedes, in regard of the figure of their heads, they are placed at some distance; in latirostrous and flat-bill'd birds they are more laterally seated, and therefore when they look intently they turn one eye upon the object, and can convert their heads to see before and behind, and to behold two opposite points at once. But at a more easie distance are they situated in man, and in the same circumference with the ear; for if one foot of the compass be placed upon the Crown, a circle described thereby will intersect, or pass over both the ears.

All sense is from the brain.

The error in this conceit consists in the ignorance of these cavities, and their proper use in nature; for this is a particular disposure of parts, and a peculiar conformation whereby these holes and sluces supply the defect of Gils, and are assisted by the conduit in the head; for like cetaceous Animals and Whales, the Lamprie hath a fistula, spout or pipe at the back part

To what use the nine eyes in a Lamprie do serve.

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of the head, whereat it spurts out water. Nor is it only singular in this formation, but also in many other; as in defect of bones, whereof it hath not one; and for the spine or backbone, a cartilaginous substance without any spondyles, processes or protuberance whatsoever. As also in the provision which Nature hath made for the heart; which in this Animal is very strangely secured, and lies immured in a cartilage or gristly substance. And lastly, in the colour of the liver: which is in the Male of an excellent grass-green: but of a deeper colour in the Female, and will communicate a fresh and durable verdure.

CHAPTER XX

Of Snayls.

WHETHER *Snayls* have eyes some Learned men have doubted. For *Scaliger* terms them but imitations of eyes; and *Aristotle* upon consequence denyeth them, when he affirms that *Testaceous* Animals have no eyes. But this now seems sufficiently asserted by the help of exquisite Glasses, which discover those black and atramentous spots or globales to be their eyes.

That they have two eyes is the common opinion, but if they have two eyes, we may grant them to have no less than four, that is, two in the larger extensions above, and two in the shorter and lesser horns below, and this number may be allowed in these inferiour and exanguious animals; since we may observe the articulate and latticed eyes in Flies, and nine in some

Spiders: And in the great *Phalangium* Spider of *America*, we plainly number eight. CHAP. XX

But in sanguineous animals, quadrupeds, bipeds, or man, no such number can be regularly verified, or multiplicity of eyes confirmed. And therefore what hath been under this kind delivered, concerning the plurality, paucity or anomalous situation of eyes, is either monstrous, fabulous, or under things never seen includes good sense or meaning. And so may we receive the figment of *Argus*, who was an Hieroglyphick of heaven, in those centuries of eyes expressing the stars; and their alternate wakings, the vicissitude of day and night. Which strictly taken cannot be admitted; for the subject of sleep is not the eye, but the common sense, which once asleep, all eyes must be at rest. And therefore what is delivered as an Embleme of vigilancy, that the Hare and Lion do sleep with one eye open, doth not evince they are any more awake then if they were both closed. For the open eye beholds in sleep no more then that which is closed; and no more one eye in them then two in other Animals that sleep with both open; as some by disease, and others naturally which have no eye-lids at all.

How things happen to be seen as double.

As for Polyphemus, although the story be fabulous, the monstrosity is not impossible. For the act of Vision may be performed with one eye; and in the deception and fallacy of sight, hath this advantage of two, that it beholds not objects double, or sees two things for one. For this doth happen when the axis of the visive cones, diffused from the object, fall not upon the same plane; but that which is conveyed into one eye, is more depressed or elevated then that which enters the other. So if beholding a Candle, we pro-

CHAP. XX trude either upward or downward the pupill of one eye, the object will appear double; but if we shut the other eye, and behold it with one, it will their appear but single; and if we abduce the eye unto either corner, the object will not duplicate: for in that position the axis of the cones remain in the same plane, as is demonstrated in the opticks, and delivered by *Galen*, in his tenth *De usu partium*.

Relations also there are of men that could make themselves invisible, which belongs not to this discourse: but may serve as notable expressions of wise and prudent men, who so contrive their affairs, that although their actions be manifest, their designs are not discoverable. In this acception there is nothing left of doubt, and *Gyges* Ring remaineth still amongst us: for vulgar eyes behold no more of wise men then doth the Sun: they may discover their exteriour and outward ways, but their interiour and inward pieces he only sees, that sees into their beings.

CHAPTER XXI

Of the Chameleon.

CONCERNING the *Chameleon* there generally passeth an opinion that it liveth only upon air, and is sustained by no other aliment: Thus much is in plain terms affirmed by *Solinus*, *Pliny*, and others, and by this periphrasis is the same described by *Ovid*. All which notwithstanding, upon enquiry I find the assertion mainly controvertible, and very much to fail in the three inducements of belief.

And first for its verity, although asserted by some,

and traditionally delivered by others, yet is it very questionable. For beside *Ælian*, who is seldom defective in these accounts; *Aristotle* distinctly treating hereof, hath made no mention of this remarkable propriety: which either suspecting its verity, or presuming its falsity, he surely omitted: for that he remained ignorant of this account it is not easily conceiveable: it being the common opinion, and generally received by all men. Some have positively denied it, as *Augustinus*, *Niphus*, *Stobæus*, *Dalechampius*, *Fortunius Licetus*, with many more; others have experimentally refuted it, as namely *Johannes Landius*, who in the relation of *Scaliger*, observed a *Chameleon* to lick up a fly from his breast: But *Bellonius* hath been more satisfactorily experimental, not only affirming they feed on Flies, Caterpillars, Beetles and other Insects, but upon exenteration he found these Animals in their bellies: whereto we might also add the experimental decisions of the worthy *Peireschius* and learned *Emanuel Vizzanius*, in that *Chameleon* which had been often observed to drink water, and delight to feed on Meal-worms. And although we have not had the advantage of our own observation, yet have we received the like confirmation from many ocular spectators.

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Comment. in Ocell. Lucan.

As touching the verisimility or probable truth of this relation, several reasons there are which seem to overthrow it. For first, there are found in this Animal, the guts, the stomack, and other parts official unto nutrition; which were its aliment the empty reception of air, their provisions had been superfluous. Now the wisdom of nature abhorring superfluities, and effecting nothing in vain, unto the intention of these operations, respectively contriveth the Organs; and therefore where we find such Instruments, we may with strict-

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ness expect their actions; and where we discover them not, we may with safety conclude the non-intention of their operations. So when we perceive that Bats have teats, it is not unreasonable to infer they suckle their younglings with milk; but whereas no other flying Animal hath these parts, we cannot from them expect a viviparous exclusion; but either a generation of eggs, or some vermiparous separation, whose navel is within it self at first, and its nutrition after not connexedly depending of its original.

Again, Nature is so far from leaving any one part without its proper action, that she oft-times imposeth two or three labours upon one, so the Pizel in Animals is both official unto Urine and to generation, but the first and primary use is generation; for some creatures enjoy that part which urine not. So the nostrils are useful both for respiration and smelling, but the principal use is smelling; for many have nostrils which have no lungs, as fishes, but none have lungs or respiration, which have not some shew, or some analogy of nostrils. Thus we perceive the providence of Nature, that is, the wisdom of God, which disposeth of no part in vain, and some parts unto two or three uses, will not provide any without the execution of its proper office, nor where there is no digestion to be made, make any parts inservient to that intention.

Nature provides no part without its proper function or office.

Beside the remarkable teeth, the tongue of this animal is a second argument to overthrow this airy nutrication: and that not only in its proper nature, but also its peculiar figure. For of this part properly taken there are two ends; that is, the formation of the voice, and the execution of tast; for the voice, it can have no office in *Chameleons*, for they are mute Animals; as beside fishes, are most other sorts of

Lizards. As for their tast, if their nutriment be air, neither can it be an Instrument thereof; for the body of that element is ingustible, void of all sapidity, and without any action of the tongue, is by the rough artery or wezon conducted into the lungs. And therefore *Pliny* much forgets the strictness of his assertion, when he alloweth excrements unto that Animal, that feedeth only upon Air; which notwithstanding with the urine of an Ass, he commends as a magicall Medicine upon our enemies. CHAP. XXI

The figure of the tongue seems also to overthrow the presumption of this aliment, which according to exact delineation, is in this Animal peculiar, and seemeth contrived for prey. For in so little a creature it is at the least a palm long, and being it self very slow in motion, hath in this part a very great agility; withall its food being flies and such as suddenly escape, it hath in the tongue a mucous and slimy extremity, whereby upon a sudden emission it inviscates and tangleth those Insects. And therefore some have thought its name not unsuitable unto its nature; the nomination in Greek is a little Lion; not so much for the resemblance of shape, as affinity of condition; that is for vigilancy in its prey, and sudden rapacity thereof, which it performeth not like the Lion with its teeth, but a sudden and unexpected ejaculation of the tongue. This exposition is favoured by some, especially the old gloss upon *Leviticus*, whereby in the Translation of *Jerome* and the Septuagint, this Animal is forbidden; what ever it be, it seems as reasonable as that of *Isidore*, who derives this name *à Camelo et Leone*, as presuming herein resemblance with a Camell. χαμαιλέων.

As for the possibility hereof, it is not also unquestionable; and wise men are of opinion, the bodies of

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Animals cannot receive a proper aliment from air; for beside that tast being (as *Aristotle* terms it) a kind of touch; it is required the aliment should be tangible, and fall under the palpable affections of touch; beside also that there is some sapor in all aliments, as being to be distinguished and judged by the gust; which cannot be admitted in air: Beside these, I say, if we consider the nature of aliment, and the proper use of air in respiration, it will very hardly fall under the name hereof, or properly attain the act of nutrication.

Requisites unto Nutrition.

And first concerning its nature, to make a perfect nutrition into the body nourished, there is required a transmutation of the nutriment, now where this conversion or aggeneration is made, there is also required in the aliment a familiarity of matter, and such a community or vicinity unto a living nature, as by one act of the soul may be converted into the body of the living, and enjoy one common soul. Which cannot be effected by air, it concurring only with our flesh in common principles, which are at the largest distance from life, and common also unto inanimated constitutions. And therefore when it is said by *Fernelius*, and asserted by divers others, that we are only nourished by living bodies, and such as are some way proceeding from them, that is, the fruits, effects, parts, or seeds thereof; they have laid out an object very agreeable unto assimulation; for these indeed are fit to receive a quick and immediate conversion, as holding some community with our selves, and containing approximate dispositions unto animation.

Secondly, (as is argued by *Aristotle* against the *Pythagoreans*) whatsoever properly nourisheth before its assimulation, by the action of natural heat it receiveth a corpulency or incrassation progressional

unto its conversion; which notwithstanding cannot be effected upon air; for the action of heat doth not condense but rarifie that body, and by attenuation, rather then for nutrition, disposeth it for expulsion. CHAP. XXI

Thirdly, (which is the argument of *Hippocrates*) all aliment received into the body, must be therein a considerable space retained, and not immediately expelled. Now air but momentally remaining in our bodies, it hath no proportionable space for its conversion; only of length enough to refrigerate the heart; which having once performed, lest being it self heated again, it should suffocate that part, it maketh no stay, but hasteth back the same way it passed in.

Fourthly, The use of air attracted by the lungs, and without which there is no durable continuation in life, is not the nutrition of parts, but the contemperation and ventilation of that fire always maintained in the forge of life; whereby although in some manner it concurreth unto nutrition, yet can it not receive the proper name of nutriment. And therefore by *Hippocrates* it is termed *Alimentum non Alimentum*, a nourishment and no nourishment. That is, in a large acception, but not in propriety of language; conserving the body, not nourishing the same; nor repairing it by assimulation, but preserving it by ventilation; for thereby the natural flame is preserved from extinction, and so the individuum supported in some way like nutrition. a De Alimento.

And though the air so entreth the Lungs, that by its nitrous Spirit doth affect the heart, and several ways qualifie the blood; and though it be also admitted into other parts, even by the meat we chew, yet that it affordeth a proper nutriment alone, it is not easily made out.

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Again, Some are so far from affirming the air to afford any nutriment, that they plainly deny it to be any Element, or that it entreth into mixt bodies as any principle in their compositions, but performeth other offices in the Universe; as to fill all vacuities about the earth or beneath it, to convey the heat of the sun, to maintain fires and flames, to serve for the flight of volatils, respiration of breathing Animals, and refrigeration of others. And although we receive it as an Element, yet since the transmutation of Elements and simple bodies, is not beyond great question, since also it is no easie matter to demonstrate that air is so much as convertible into water; how transmutable it is into flesh, may be of deeper doubt.

Wherein Vapour is commonly mistaken for air.

And although the air attracted may be conceived to nourish the invisible flame of life, in as much as common and culinary flames are nourished by the air about them; we make some doubt whether air is the pabulous supply of fire, much less that flame is properly air kindled. And the same before us, hath been denied by the Lord of *Verulam*, in his Tract of Life and Death, and also by Dr. *Jorden* in his book of Mineral waters. For that which substantially maintaineth the fire, is the combustible matter in the kindled body, and not the ambient air, which affordeth exhalation to its fuliginous atomes; nor that which causeth the flame properly to be termed air, but rather as he expresseth it, the accension of fuliginous exhalations, which contain an unctuosity in them, and arise from the matter of fuel, which opinion will salve many doubts, whereof the common conceit affordeth no solution.

What the matter of Culinary or Kitchin fire is.

As first, How fire is stricken out of flints? that is, not by kindling the air from the collision of two hard

bodies; for then Diamonds should do the like better than Flints: but rather from sulphureous inflamed and even vitrified effluviums and particles, as hath been observed of late. The like saith *Jorden* we observe in canes and woods, that are unctuous and full of oyl, which will yield fire by frication, or collision, not by kindling the air about them, but the inflamable oyl within them. Why the fire goes out without air? that is, because the fuliginous exhalations wanting evaporation recoil upon the flame and choak it, as is evident in cupping glasses; and the artifice of charcoals, where if the air be altogether excluded, the fire goes out. Why some lamps include in those bodies have burned many hundred years, as that discovered in the Sepulchre of *Tullia*, the sister of *Cicero*, and that of *Olibius* many years after, near *Padua*? because whatever was their matter, either a preparation of gold, or *Naptha*, the duration proceeded from the purity of their oyl which yielded no fuliginous exhalations to suffocate the fire; For if air had nourished the flame, it had not continued many minutes, for it would have been spent and wasted by the fire. Why a piece of flax will kindle, though it touch not the flame? because the fire extendeth further, then indeed it is visible, being at some distance from the week, a pellucide and transparent body, and thinner then the air it self. Why Mettals in their liquation, although they intensly heat the air above their surface, arise not yet into a flame, nor kindle the air about them? because their sulphur is more fixed, and they emit not inflamable exhalations. And lastly, why a lamp or candle burneth only in the air about it, and inflameth not the air at a distance from it? because the flame extendeth not beyond the inflamable effluence, but closely

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Why fire goes out commonly wanting air, and why sometimes continued many ages in flame without fuel.

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adheres unto the original of its inflamation; and therefore it only warmeth, not kindleth the air about it. Which notwithstanding it will do, if the ambient air be impregnate with subtile inflamabilities, and such as are of quick accension; as experiment is made in a close room; upon an evaporation of spirits of wine and Camphire; as subterraneous fires do sometimes happen, and as *Creusa* and *Alexanders* boy in the bath were set on fire by *Naptha*.

Lastly, The Element of air is so far from nourishing the body, that some have questioned the power of water; many conceiving it enters not the body in the power of aliment, or that from thence there proceeds a substantial supply. For beside that some creatures drink not at all; Even unto our selves, and more perfect Animals, though many ways assistent thereto, it performs no substantial nutrition, serving for refrigeration, dilution of solid aliment, and its elixation in the stomack; which from thence as a vehicle it conveys through less accessible cavities, and so in a rorid substance through the capillary cavities, into every part; which having performed, it is afterward excluded by Urine, sweat and serous separations. And this opinion surely possessed the Ancients; for when they so highly commended that water which is suddenly hot and cold, which is without all savour, the lightest, the thinnest, and which will soonest boil Beans or Pease, they had no consideration of nutrition; whereunto had they had respect, they would have surely commended gross and turbid streams, in whose confusion at least, there might be contained some nutriment; and not jejune or limped water, nearer the simplicity of its Element. Although, I confess, our clearest waters and such as seem simple unto sense, are much

compounded unto reason, as may be observed in the evaporation of large quantities of water; wherein beside a terreous residence some salt is also found, as is also observable in rain water; which appearing pure and empty, is full of seminal principles, and carrieth vital atomes of plants and Animals in it, which have not perished in the great circulation of nature; as may be discovered from several Insects generated in rain water, from the prevalent fructification of plants thereby; and (beside the real plant of *Cornerius*) from vegetable figurations, upon the sides of glasses, so rarely delineated in frosts.

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A seed of plants and animals contained in rain-water. Zibavius, *tom.* 4. Chym.

All which considered, severer heads will be apt enough to conceive the opinion of this Animal, not much unlike that of the Astomi, or men without mouths, in *Pliny*; sutable unto the relation of the Mares in *Spain*, and their subventaneous conceptions, from the Western wind; and in some way more unreasonable then the figment of *Rabican* the famous horse in *Ariosto*, which being conceived by flame and wind, never tasted grass, or fed on any grosser provender then air; for this way of nutrition was answerable unto the principles of his generation. Which being not airy, but gross and seminal in the *Chameleon*; unto its conservation there is required a solid pasture, and a food congenerous unto the principles of its nature.

The grounds of this opinion are many; the first observed by *Theophrastus*, was the inflation or swelling of the body, made in this Animal upon inspiration or drawing in its breath; which people observing, have thought it to feed upon air. But this effect is rather occasioned upon the greatness of its lungs, which in this Animal are very large, and by their backward

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situation, afford a more observable dilation; and though their lungs be less, the like inflation is also observable in Toads, but especially in Sentortoises.

A second is the continual hiation or holding open its mouth, which men observing, conceive the intention thereof to receive the aliment of air; but this is also occasioned by the greatness of its lungs; for repletion whereof not having a sufficient or ready supply by its nostrils; it is enforced to dilate and hold open the jaws.

The third is the paucity of blood observed in this Animal, scarce at all to be found but in the eye, and about the heart; which defect being observed, inclined some into thoughts, that the air was a sufficient maintenance for these exanguious parts. But this defect or rather paucity of blood, is also agreeable unto many other Animals, whose solid nutriment we do not controvert; as may be observed in other sorts of Lizards, in Frogs and divers Fishes; and therefore an Horseleech will not readily fasten upon every fish; and we do not read of much blood that was drawn from Frogs by Mice, in that famous battel of *Homer*.

The last and most common ground which begat or promoted this opinion, is the long continuation hereof without any visible food, which some observing, precipitously conclude they eat not at all. It cannot be denied it is (if not the most of any) a very abstemious Animal, and such as by reason of its frigidity, paucity of blood, and latitancy in the winter (about which time the observations are often made) will long subsist without a visible sustentation. But a like condition may be also observed in many other Animals; for Lizards and Leeches, as we have made trial, will live some months without sustenance; and we have included

Snails in glasses all winter, which have returned to feed again in the spring. Now these notwithstanding, are not conceived to pass all their lives without food; for so to argue is fallacious, and is moreover sufficiently convicted by experience. And therefore probably other relations are of the same verity, which are of the like affinity; as is the conceit of the *Rhintace* in *Persia*, the *Canis Levis* of *America*, and the *Manucodiata* or bird of Paradise in *India*. CHAP. XXI

To assign a reason of this abstinence in Animals, or declare how without a supply there ensueth no destructive exhaustion, exceedeth the limits and intention of my discourse. *Fortunius Licetus* in his excellent Tract, *de his qui diu vivunt sine alimento*, hath very ingeniously attempted it; deducing the cause hereof from an equal conformity of natural heat and moisture, at least no considerable exuperancy in either; which concurring in an unactive proportion, the natural heat consumeth not the moisture (whereby ensueth no exhaustion) and the condition of natural moisture is able to resist the slender action of heat (whereby it needeth no reparation) and this is evident in Snakes, Lizards, Snails, and divers Insects latitant many months in the year; which being cold creatures, containing a weak heat in a crass or copious humidity, do long subsist without nutrition. For the activity of the agent, being not able to overmaster the resistance of the patient, there will ensue no deperdition. And upon the like grounds it is, that cold and phlegmatick bodies, and (as *Hippocrates* determineth) that old men will best endure fasting. Now the same harmony and stationary constitution, as it happeneth in many species, so doth it fall out sometime in Individuals. For we read of many who have lived long without aliment; and beside deceits and

CHAP. XXI impostures, there may be veritable Relations of some, who without a miracle, and by peculiarity of temper, have far out fasted *Elias*. Which notwithstanding doth not take off the miracle; for that may be miraculously effected in one, which is naturally causable in another. Some naturally living unto an hundred; unto which age, others notwithstanding could not attain without a miracle.

CHAPTER XXII

Of the Ostrich.

THE common opinion of the *Ostrich*, *Struthiocamelus* or *Sparrow-Camel* conceives that it digesteth Iron; and this is confirmed by the affirmations of many; beside swarms of others, *Rhodiginus* in his prelections taketh it for granted, *Johannes Langius* in his Epistles pleadeth experiment for it; the common picture also confirmeth it, which usually describeth this Animal with an horshoe in its mouth. Notwithstanding upon enquiry we find it very questionable, and the negative seems most reasonably entertained; whose verity indeed we do the rather desire, because hereby we shall relieve our ignorance of one occult quality; for in the list thereof it is accounted, and in that notion imperiously obtruded upon us. For my part, although I have had the sight of this Animal, I have not had the opportunity of its experiment, but have received great occasion of doubt, from learned discourses thereon.

For *Aristotle* and *Oppianus* who have particularly treated hereof are silent in this singularity; either

omitting it as dubious, or as the Comment saith, rejecting it as fabulous. *Pliny* speaketh generally, affirming only, the digestion is wonderful in this Animal; *Ælian* delivereth, that it digesteth stones without any mention of Iron; *Leo Africanus*, who lived in those Countries wherein they most abound, speaketh diminutively, and but half way into this assertion: *Surdum ac simplex animal est, quicquid invenit, absque delectu, usque ad ferrum devorat*: *Fernelius* in his second *De abditis rerum causis*, extenuates it, and *Riolanus* in his Comment thereof positively denies it. Some have experimentally refuted it, as *Albertus Magnus*; and most plainly *Ulysses Aldrovandus*, whose words are these: *Ego ferri frusta devorare, dum Tridenti essem, observavi, sed quæ incocta rursus excerneret*, that is, at my being at Trent, I observed the *Ostrich* to swallow Iron, but yet to exclude it undigested again. CHAP. XXII

Now beside experiment, it is in vain to attempt against it by Philosophical argument, it being an occult quality, which contemns the law of Reason, and defends it self by admitting no reason at all. As for its possibility we shall not at present dispute; nor will we affirm that Iron ingested, receiveth in the stomack of the *Ostrich* no alteration at all; but if any such there be, we suspect this effect rather from some way of corrosion, then any of digestion; not any liquid reduction or tendance to chilification by the power of natural heat, but rather some attrition from an acide and vitriolous humidity in the stomack, which may absterse and shave the scorious parts thereof. So rusty Iron crammed down the throat of a Cock, will become terse and clear again in its gizzard: So the Counter which according to the relation of *Amatus* remained a whole year in the body of a youth, and

How (possibly) the stomack of the Ostrich *may alter Iron.*

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came out much consumed at last; might suffer this diminution, rather from sharp and acide humours, then the strength of natural heat, as he supposeth. So silver swallowed and retained some time in the body, will turn black, as if it had been dipped in *Aqua fortis*, or some corrosive water, but Lead will remain unaltered; for that mettal containeth in it a sweet salt or sugar, whereby it resisteth ordinary corrosion, and will not easily dissolve even in *Aqua fortis*. So when for medical uses, we take down the filings of Iron or Steel, we must not conceive it passeth unaltered from us; for though the grosser parts be excluded again, yet are the dissoluble parts extracted, whereby it becomes effectual in deopilations; and therefore for speedier operation we make extinctions, infusions, and the like, whereby we extract the salt and active parts of the Medicine; which being in solution, more easily enter the veins. And this is that the Chymists mainly drive at in the attempt of their *Aurum Potabile*; that is, to reduce that indigestible substance into such a form as may not be ejected by siege, but enter the cavities, and less accessible parts of the body, without corrosion.

What the Chymists would have by their Aurum Potabile.

The ground of this conceit is its swallowing down fragments of Iron, which men observing, by a froward illation, have therefore conceived it digesteth them; which is an inference not to be admitted, as being a fallacy of the consequent, that is, concluding a position of the consequent, from the position of the antecedent. For many things are swallowed by Animals, rather for condiment, gust or medicament, then any substantial nutriment. So Poultrey, and especially the Turkey, do of themselves take down stones; and we have found at one time in the gizzard of a Turkey no less then

seven hundred. Now these rather concur unto digestion, then are themselves digested; for we have found them also in the guts and excrements; but their descent is very slow, for we have given them stones and small pieces of Iron, which eighteen days after we have found remaining in the gizzard. And therefore the experiment of *Langius* and others might be fallible, whilst after the taking they expected it should come down within a day or two after. Thus also we swallow Cherry-stones, but void them unconcocted, and we usually say they preserve us from surfet; for being hard bodies they conceive a strong and durable heat in the stomack, and so prevent the crudities of their fruit: And upon the like reason do culinary operators observe, that flesh boiles best, when the bones are boiled with it. Thus dogs will eat grass, which they digest not: Thus Camels to make the water sapid, do raise the mud with their feet: Thus horses will knable at walls, Pigeons delight in salt stones. Rats will gnaw iron, and *Aristotle* saith the Elephant swalloweth stones. And thus may also the *Ostrich* swallow Iron; not as his proper aliment, but for the ends above expressed, and even as we observe the like in other Animals.

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How Cherry-stones may be thought to prevent surfets upon eating Cherries.

And whether these fragments of Iron and hard substances swallowed by the *Ostrich*, have not also that use in their stomacks, which they have in other birds; that is, in some way to supply the use of teeth, by commolition, grinding and compression of their proper aliment, upon the action of the strongly conformed muscles of the stomack; as the honor'd Dr. *Harvey* discourseth, may also be considered.

What effect therefore may be expected from the stomack of an *Ostrich* by application alone to further

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digestion in ours, beside the experimental refute of *Galen*, we refer it unto considerations above alledged; Or whether there be any more credit to be given unto the Medicine of *Ælian*, who affirms the stones they swallow have a peculiar vertue for the eyes, then that of *Hermolaus* and *Pliny* drawn from the urine of this Animal; let them determine who can swallow so strange a transmission of qualities, or believe that any Bird or flying Animal doth separately and distinctly urine beside the Bat.

That therefore an *Ostrich* will swallow and take down Iron, is easily to be granted: that oftimes it pass entire away, if we admit of ocular testimony not to be denied. And though some experiment may also plead, that sometimes they are so altered, as not to be found or excluded in any discernable parcels: yet whether this be not effected by some way of corrosion, from sharp and dissolving humidities, rather then any proper digestion, chilifactive mutation, or alimental conversion, is with good reason doubted.

CHAPTER XXIII

Of Unicorns Horn.

GREAT account and much profit is made of *Unicorns horn*, at least of that which beareth the name thereof; wherein notwithstanding, many I perceive suspect an Imposture, and some conceive there is no such Animal extant. Herein therefore to draw up our determinations; beside the several places of Scripture mentioning this Animal (which some may well contend to be only meant of the

Rhinoceros) we are so far from denying there is any *Unicorn* at all, that we affirm there are many kinds thereof. In the number of Quadrupedes, we will concede no less then five; that is, the *Indian* Ox, the *Indian* Ass, the Rhinoceros, the Oryx, and that which is more eminently termed *Monoceros*, or *Unicornis*. Some of the list of fishes; as that described by *Olaus*, *Albertus* and others: and some Unicorns we will allow even among Insects; as those four kinds of nasicornous Beetles described by *Muffetus*. CHAP. XXIII

Some doubt to be made what ראם *signifieth in Scripture.*

Secondly, Although we concede there may be many *Unicorns*, yet are we still to seek; for whereunto to affix this Horn in question, or to determine from which thereof we receive this magnified Medicine, we have no assurance, or any satisfactory decision. For although we single out one, and eminently thereto assign the name of the *Unicorn*; yet can we not be secure what creature is meant thereby; what constant shape it holdeth, or in what number to be received. For as far as our endeavours discover, this animal is not uniformly described, but differently set forth by those that undertake it. *Pliny* affirmeth it is a fierce and terrible creature; *Vartomannus* a tame and mansuete Animal: those which *Garcias ab Horto* described about the cape of good hope, were beheld with heads like horses; those which *Vartomannus* beheld, he described with the head of a Deer; *Pliny*, *Ælian*, *Solinus*, and after these from ocular assurance, *Paulus Venetus* affirmeth, the feet of the *Unicorn* are undivided, and like the Elephants: But those two which *Vartomannus* beheld at *Mecha*, were as he describeth, footed like a Goat. As *Ælian* describeth, it is in the bigness of an Horse, as *Vartomannus*, of a Colt; that which *Thevet* speaketh of was not so big as an Heifer; but *Paulus Venetus*

The Unicorn, how variously reported by Authors.

CHAP. XXIII affirmeth, they are but little less then Elephants. Which are discriminations very material, and plainly declare, that under the same name Authors describe not the same Animal: so that the *Unicorns* Horn of one, is not that of another, although we proclaim an equal vertue in all.

Thirdly, Although we were agreed what Animal this was, or differed not in its description, yet would this also afford but little satisfaction; for the Horn we commonly extol, is not the same with that of the Ancients. For that in the description of *Ælian* and *Pliny* was black: this which is shewed amongst us is commonly white, none black; and of those five which *Scaliger* beheld, though one spadiceous, or of a light red, and two enclining to red, yet was there not any of this complexion among them.

Fourthly, What Horns soever they be which pass amongst us, they are not surely the Horns of any one kind of Animal, but must proceed from several sorts of *Unicorns*. For some are wreathed, some not: That famous one which is preserved at St. *Dennis* near *Paris*, hath wreathy spires, and chocleary turnings about it, which agreeth with the description of the *Unicorns* Horn in *Ælian*. Those two in the treasure of St. *Mark* are plain, and best accord with those of the *Indian* Ass, or the descriptions of other *Unicorns*: That in the Repository of the electour of Saxone is plain and not hollow, and is believed to be a true Land *Unicorns* Horn. *Albertus Magnus* describeth one ten foot long, and at the base about thirteen inches compass: And that of *Antwerp* which *Goropius Becanus* describeth, is not much inferiour unto it; which best agree unto the descriptions of the *Sea-Unicorns*; for these, as *Olaus* affirmeth, are of that strength and

bigness, as able to penetrate the ribs of ships. The same is more probable, because it was brought from Island, from whence, as *Becanus* affirmeth, three other were brought in his days: And we have heard of some which have been found by the Sea-side, and brought unto us from *America*. So that while we commend the *Unicorns* Horn, and conceive it peculiar but unto one animal; under apprehension of the same vertue, we use very many; and commend that effect from all, which every one confineth unto some one he hath either seen or described. CHAP. XXIII

Fifthly, Although there be many *Unicorns*, and consequently many Horns, yet many there are which bear that name, and currantly pass among us, which are no Horns at all. Such are those fragments and pieces of *Lapis Ceratites*, commonly termed *Cornu fossile*, whereof *Bœtius* had no less than twenty several sorts presented him for *Unicorns* Horn. Hereof in subterraneous cavities, and under the earth there are many to be found in several parts of *Germany*; which are but the lapidescencies and petrifactive mutations of hard bodies; sometimes of Horn, of teeth, of bones, and branches of trees, whereof there are some so imperfectly converted, as to retain the odor and qualities of their originals; as he relateth of pieces of Ash and Walnut. Again, in most, if not all which pass amongst us, and are extolled for precious Horns, we discover not an affection common unto other Horns; that is, they mollifie not with fire, they soften not upon decoction or infusion, nor will they afford a jelly, or mucilaginous concretion in either; which notwithstanding we may effect in Goats horns, Sheeps, Cows and Harts-horn, in the Horn of the *Rhinoceros*, the horn of the Pristis or Sword fish. Nor do they become

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friable or easily powderable by Philosophical calcin tion, that is, from the vapor or steam of water, b split and rift contrary to others horns. Briefly, ma of those commonly received, and whereof there be many fragments preserved in *England*, are not only Horn, but a substance harder then a bone, that parts of the tooth of a Morse or Sea-horse; in t midst of the solider part contained a curdled grai which is not to be found in Ivory. This in Northe Regions is of frequent use for hafts of knives or hi of swords, and being burnt becomes a good remedy f fluxes: but Antidotally used, and exposed for *Unicor* Horn, it is an insufferable delusion; and with mc veniable deceit, it might have been practised in Har horn.

Unicorns *Horn commonly used in* England, *what it is.*

The like deceit may be practised in the teeth of oth Sea-animals; in the teeth also of the *Hippopotam* or great Animal which frequenteth the River *Nil* For we read that the same was anciently used inste of Ivory or Elephants tooth. Nor is it to be omitte what hath been formerly suspected, but now confirm by *Olaus Wormius*, and *Thomas Bartholinus* and othe that those long Horns preserved as pretious rarities many places, are but the teeth of Narhwales, to found about Island, Greenland and other Northe regions; of many feet long, commonly wreathed, ve deeply fastned in the upper jaw, and standing direct forward, graphically described in *Bartholinus*, accordi unto one sent from a Bishop of Island, not separat from the crany. Hereof *Mercator* hath taken noti in his description of Island: some relations here there seem to be in *Purchas*, who also delivereth th the Horn at *Windsor*, was in his second voyage broug hither by *Frobisher*. These before the Northern di

De Unicornu.

coveries, as unknown rarities, were carried by Merchants into all parts of *Europe*; and though found on the Sea-shore, were sold at very high rates; but are now become more common, and probably in time will prove of little esteem; and the bargain of *Julius* the third, be accounted a very hard one, who stuck not to give many thousand crowns for one. CHAP. XXIII

Nor is it great wonder we may be so deceived in this, being daily gulled in the brother Antidote Bezoar; whereof though many be false, yet one there passeth amongst us of more intollerable delusion; somewhat paler then the true stone, and given by women in the extremity of great diseases, which notwithstanding is no stone, but seems to be the stony seed of some Lithospermum or greater Grumwell; or the Lobus Echinatus of *Clusius*, called also the Bezoar Nut; for being broken, it discovereth a kernel of a leguminous smell and tast, bitter like a Lupine, and will swell and sprout if set in the ground, and therefore more serviceable for issues, then dangerous and virulent diseases.

Sixthly, Although we were satisfied we had the *Unicorns* Horn, yet were it no injury unto reason to question the efficacy thereof, or whether those vertues pretended do properly belong unto it. For what we observe, (and it escaped not the observation of *Paulus Jovius* many years past) none of the Ancients ascribed any medicinal or antidotal vertue unto the *Unicorns* Horn; and that which *Ælian* extolleth, who was the first and only man of the Ancients who spake of the medical vertue of any *Unicorn*, was the Horn of the *Indian* Ass; whereof, saith he, the Princes of those parts make bowls and drink therein, as preservatives against Poyson, Convulsions, and the Falling-sickness. Now the description of that Horn is not agreeable

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unto that we commend; for that (saith he) is red above, white below, and black in the middle; which is very different from ours, or any to be seen amongst us. And thus, though the description of the *Unicorn* be very ancient, yet was there of old no vertue ascribed unto it; and although this amongst us receive the opinion of the same vertue, yet is it not the same Horn whereunto the Antients ascribed it.

Lastly, Although we allow it an Antidotal efficacy, and such as the Ancients commended, yet are there some vertues ascribed thereto by Moderns not easily to be received; and it hath surely faln out in this, as other magnified medicines, whose operations effectual in some diseases, are presently extended unto all. That some Antidotal quality it may have, we have no reason to deny; for since Elks Hoofs and Horns are magnified for Epilepsies, since not only the bone in the heart, but the Horn of a Deer is Alexipharmacal, and ingredient into the confection of Hyacinth, and the Electuary of Maximilian; we cannot without prejudice except against the efficacy of this. But when we affirm it is not only Antidotal to proper venoms, and substances destructive by qualities we cannot express; but that it resisteth also Sublimate, Arsenick, and poysons which kill by second qualities, that is, by corrosion of parts; I doubt we exceed the properties of its nature, and the promises of experiment will not secure the adventure. And therefore in such extremities, whether there be not more probable relief from fat oyly substances, which are the open tyrants over salt and corrosive bodies, then precious and cordial medicines which operate by secret and disputable proprieties; or whether he that swallowed Lime, and drank down Mercury water, did not more

Expulsive of Poisons.

reasonably place his cure in milk, butter or oyl, then if he had recurred unto Pearl and Bezoar, common reason at all times, and necessity in the like case would easily determine. CHAP. XXIII

Since therefore there be many *Unicorns*; since that whereto we appropriate a Horn is so variously described, that it seemeth either never to have been seen by two persons, or not to have been one animal; Since though they agreed in the description of the animal, yet is not the Horn we extol the same with that of the Ancients; Since what Horns soever they be that pass among us, they are not the Horns of one, but several animals; Since many in common use and high esteem are no Horns at all; Since if there were true Horns, yet might their vertues be questioned; Since though we allowed some vertues, yet were not others to be received; with what security a man may rely on this remedy, the mistress of fools hath already instructed some, and to wisdom (which is never to wise to learn) it is not too late to consider.

CHAPTER XXIV

That all Animals of the Land, are in their kind in the Sea.

THAT all Animals of the Land, are in their kind in the Sea, although received as a principle, is a tenent very questionable, and will admit of restraint. For some in the Sea are not to be matcht by any enquiry at Land, and hold those shapes which terrestrious forms approach not; as may be observed in the Moon-fish, or Orthragoriscus, the

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several sorts of Raia's, Torpedo's, Oysters, and many more, and some there are in the Land which were never maintained to be in the Sea, as Panthers, Hyæna's, Camels, Sheep, Molls, and others, which carry no name in Icthyology, nor are to be found in the exact descriptions of *Rondoletius*, *Gesner*, or *Aldrovandus*.

History of fishes.

Again, Though many there be which make out their nominations, as the Hedg-hog, Sea-serpents and others; yet are there also very many that bear the name of animals at Land, which hold no resemblance in corporal configuration; in which account we compute *Vulpecula*, *Canis*, *Rana*, *Passer*, *Cuculus*, *Asellus*, *Turdus*, *Lepus*, etc. Wherein while some are called the Fox, the Dog, the Sparrow or Frog-fish: and are known by common names with those at Land; yet as their describers attest, they receive not these appellations from a total similitude in figure, but any concurrence in common accidents, in colour, condition or single conformation. As for Sea-horses which much confirm this assertion; in their common descriptions, they are but Crotesco deliniations which fill up empty spaces in Maps, and meer pictorial inventions, not any Physical shapes: sutable unto those which (as *Pliny* delivereth) *Praxiteles* long ago set out in the Temple of *Domitius*. For that which is commonly called a Sea-horse, is properly called a Morse, and makes not out that shape. That which the Ancients named *Hippocampus* is a little animal about six inches long, and not preferred beyond the classis of Insects. That which they termed *Hippopotamus* an amphibious animal, about the River *Nile*, so little resembleth an horse, that as *Mathiolus* observeth, in all except the feet, it better makes out a swine. That which they termed a Lion, was but a kind of Lobster: that which they called the

Bear, was but one kind of Crab: and that which they named *Bos marinus*, was not as we conceive a fish resembling an Ox, but a Skait or Thornback, so named from its bigness, expressed by the Greek word *Bous*, which is a prefix of augmentation to many words in that language. CHAP. XXIV

And therefore although it be not denied that some in the water do carry a justifiable resemblance to some at Land, yet are the major part which bear their names unlike; nor do they otherwise resemble the creatures on earth, then they on earth the constellations which pass under animal names in heaven: nor the Dog fish at Sea much more make out the Dog of the Land, then that his cognominal or name-sake in the heavens. Now if from a similitude in some, it be reasonable to infer a correspondence in all, we may draw this analogy of animals upon plants; for vegetables there are which carry a near and allowable similitude unto animals. We might also conclude that animal shapes were generally made out in minerals: for several stones there are that bear their names in relation to animals or their parts, as *Lapis anguinus*, *Conchites*, *Echinites*, *Encephalites*, *Ægopthalmus*, and many more; as will appear in the Writers of Minerals, and especially in *Bœtius* and *Aldrovandus*. Fab. columna. de stirp. rarioribus, Orchis, Cercopithecophora, Anthropophora.

Moreover if we concede, that the animals of one Element, might bear the names of those in the other, yet in strict reason the watery productions should have the prenomination: and they of the land rather derive their names, then nominate those of the Sea. For the watery plantations were first existent, and as they enjoyed a priority in form, had also in nature precedent denominations: but falling not under that Nomenclature of *Adam*, which unto terrestrious animals as-

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signed a name appropriate unto their natures: from succeeding spectators they received arbitrary appellations: and were respectively denominated unto creatures known at Land; who in themselves had independent names and not to be called after them, which were created before them.

Lastly, By this assertion we restrain the hand of God, and abridge the variety of the creation; making the creatures of one Element, but an acting over those of another, and conjoyning as it were the species of things which stood at distance in the intellect of God; and though united in the Chaos, had several seeds of their creation. For although in that indistinguisht mass, all things seemed one; yet separated by the voice of God, according to their species, they came out in incommunicated varieties, and irrelative seminalities, as well as divided places; and so although we say the world was made in six days, yet was there as it were a world in every one; that is, a distinct creation of distinguisht creatures; a distinction in time of creatures divided in nature, and a several approbation and survey in every one.

CHAPTER XXV

Concerning the common course of Diet, in making choice of some Animals, and abstaining from eating others.

WHY we confine our food unto certain Animals, and totally reject some others; how these distinctions crept into several Nations; and whether this practice be built upon solid

reason, or chiefly supported by custom or opinion; may admit consideration. CHAP. XXV

For first there is no absolute necessity to feed on any; and if we resist not the stream of Authority, and several diductions from holy Scripture: there was no *Sarcophagie* before the flood; and without the eating of flesh, our fathers from vegetable aliments, preserved themselves unto longer lives, then their posterity by any other. For whereas it is plainly said, I have given you every herb which is upon the face of all the earth, and every tree, to you it shall be for meat; presently after the deluge, when the same had destroyed or infirmed the nature of vegetables, by an expression of enlargement, it is again delivered: Every moving thing that liveth, shall be meat for you, even as the green herb, have I given you all things.

Eating of Flesh.

Gen. 1. 29.

The natural vertue of vegetables impaired by the deluge.

Gen. 9. 3.

And therefore although it be said that *Abel* was a Shepherd, and it be not readily conceived, the first men would keep sheep, except they made food thereof: great Expositors will tell us, that it was partly for their skins, wherewith they were cloathed, partly for their milk, whereby they were sustained; and partly for Sacrifices, which they also offered.

And though it may seem improbable, that they offered flesh, yet eat not thereof; and *Abel* can hardly be said to offer the firstlings of his flock, and the fat or acceptable part, if men used not to tast the same, whereby to raise such distinctions: some will confine the eating of flesh unto the line of *Cain*, who extended their luxury, and confined not unto the rule of God. That if at any time the line of *Seth* eat flesh, it was extraordinary, and only at their sacrifices; or else (as *Grotius* hinteth) if any such practice there were, it was not from the beginning; but from that time when the

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waies of men were corrupted, and whereof it is said, that the wickedness of mans heart was great; the more righteous part of mankind probably conforming unto the diet prescribed in Paradise, and the state of innocency. And yet however the practice of men conformed, this was the injunction of God, and might be therefore sufficient, without the food of flesh.

Eating of Flesh (probably) not so common before the flood.

That they fed not on flesh, at least the faithful party before the flood, may become more probable, because they refrained the same for some time after. For so was it generally delivered of the golden age and reign of *Saturn*; which is conceived the time of *Noah*, before the building of *Babel*. And he that considereth how agreeable this is unto the traditions of the *Gentiles*; that that age was of one tongue: that *Saturn* devoured all his sons but three; that he was the son of *Oceanus* and *Thetis*; that a Ship was his Symbole; that he taught the culture of vineyards, and the art of husbandry, and was therefore described with a sickle, may well conceive, these traditions had their original in *Noah*. Nor did this practice terminate in him, but was continued at least in many after: as (beside the *Pythagoreans* of old, *Bannyans* now in *India*, who upon single opinions refrain the food of flesh) ancient records do hint or plainly deliver. Although we descend not so low, as that of *Æsclepiades* delivered by *Porphyrius*, that men began to feed on flesh in the raign of *Pygmaleon* brother of *Dido*, who invented several torments, to punish the eaters of flesh.

περὶ ἀποχῆς.

Nor did men only refrain from the flesh of beasts at first, but as some will have it, beasts from one another. And if we should believe very grave conjecturers, carnivorous animals now, were not flesh devourers

then, according to the expression of the divine provision for them. To every beast of the earth, and to every fowl of the air, I have given every green herb for meat, and it was so. As is also collected from the store laid up in the Ark; wherein there seems to have been no fleshly provision for carnivorous Animals. For of every kind of unclean beast there went but two into the Ark: and therefore no stock of flesh to sustain them many days, much less almost a year. CHAP. XXV Gen. i. 30.

But when ever it be acknowledged that men began to feed on flesh, yet how they betook themselves after to particular kinds thereof, with rejection of many others, is a point not clearly determined. As for the distinction of clean and unclean beasts, the original is obscure, and salveth not our practice. For no Animal is naturally unclean, or hath this character in nature; and therefore whether in this distinction there were not some mystical intention: whether *Moses* after the distinction made of unclean beasts, did not name these so before the flood by anticipation: whether this distinction before the flood, were not only in regard of sacrifices, as that delivered after was in regard of food: (for many were clean for food, which were unclean for sacrifice) or whether the denomination were but comparative, and of beasts less commodious for food, although not simply bad, is not yet resolved. *How Moses might distinguish beasts into clean and unclean before the flood.*

And as for the same distinction in the time of *Moses*, long after the flood, from thence we hold no restriction, as being no rule unto Nations beside the *Jews* in dietetical consideration, or natural choice of diet, they being enjoyned or prohibited certain foods upon remote and secret intentions. Especially thereby to avoid community with the Gentiles upon promiscuous commensality: or to divert them from the Idolatry

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of *Egypt* whence they came, they were enjoyned to eat the Gods of *Egypt* in the food of Sheep and Oxen. Withall in this distinction of Animals the consideration was hieroglyphical; in the bosom and inward sense implying an abstinence from certain vices symbolically intimated from the nature of those animals; as may be well made out in the prohibited meat of Swine, Cony, Owl, and many more.

At least the intention was not medical, or such as might oblige unto conformity or imitation; For some we refrain which that Law alloweth, as Locusts and many others; and some it prohibiteth, which are accounted good meat in strict and Medical censure: as (beside many fishes which have not finns and scales,) the Swine, Cony and Hare, a dainty dish with the Ancients; as is delivered by *Galen*, testified by *Martial*, as the popular opinion implied, that men grew fair by the flesh thereof: by the diet of *Cato*, that is Hare and Cabbage; and the *Jus nigrum*, or Black broath of the *Spartans*, which was made with the blood and bowels of an Hare.

Inter quadrupedes mattya prima Lepus.

And if we take a view of other Nations, we shall discover that they refrained many meats upon the like considerations. For in some the abstinence was symbolical; so *Pythagoras* enjoyned abstinence from fish: that is, luxurious and dainty dishes; So according to *Herodotus*, some *Egyptians* refrained swines flesh, as an impure and sordid animal: which whoever but touched, was fain to wash himself.

Some abstained superstitiously or upon religious consideration: So the *Syrians* refrained Fish and Pigeons; the *Egyptians* of old, Dogs, Eeles and Crocodiles; though *Leo Africanus* delivers, that many of late, do eat them with good gust: and *Herodotus* also

affirmeth, that the *Egyptians* of *Elephantina* (unto whom they were not sacred,) did eat thereof in elder times: and Writers testify, that they are eaten at this day in *India* and *America*. And so, as *Cæsar* reports, unto the ancient *Britains* it was piaculous to tast a Goose, which dish at present no table is without. CHAP. XXV Lib. 3. de bello Gall.

Unto some Nations the abstinence was political and for some civil advantage: So the *Thessalians* refrained Storks, because they destroyed their Serpents; and the like in sundry animals is observable in other Nations.

And under all these considerations were some animals refrained: so the *Jews* abstained from swine at first symbolically, as an Emblem of impurity; and not for fear of the Leprosie, as *Tacitus* would put upon them. The *Cretians* superstitiously, upon tradition that *Jupiter* was suckled in that countrey by a Sow. Some *Egyptians* politically, because they supplyed the labour of plowing by rooting up the ground. And upon like considerations perhaps the *Phœnicians* and *Syrians* fed not on this Animal: and as *Solinus* reports, the *Arabians* also and *Indians*. A great part of mankind refraining one of the best foods, and such as *Pythagoras* himself would eat; who, as *Aristoxenus* records, refused not to feed on Pigs. *Aul. Gell.* lib. 4.

Moreover while we single out several dishes and reject others, the selection seems but arbitrary, or upon opinion; for many are commended and cryed up in one age, which are decryed and nauseated in another. Thus in the dayes of *Mecenas*, no flesh was preferred before young Asses; which notwithstanding became abominable unto succeeding appetites. At the table of *Heliogabalus* the combs of Cocks were an esteemed service; which country stomacks will not admit at ours. The Sumen or belly and dugs of swine with *Certain dishes in great request with the Ancients, not so much esteemed now.*

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Pig, and sometimes beaten and bruised unto death: the womb of the same Animal, especially that was barren, or else had cast her young ones, though a tough and membranous part, was magnified by Roman Palats; whereunto nevertheless we cannot perswade our stomacks. How *Alec*, *Muria*, and *Garum*, would humour our gust I know not; but surely few there are that could delight in their *Cyceon*; that is, the common draught of Honey, Cheese, parcht Barley-flower, Oyl and Wine; which notwithstanding was commended mixture, and in high esteem among them. We mortifie our selves with the diet of fish, and think we fare coursly if we refrain from the flesh of other animals. But antiquity held another opinion hereof: When *Pythagoras* in prevention of luxury advised, not so much as to tast on fish. Since the *Rhodians* were wont to call them clowns that eat flesh: and since *Plato* to evidence the temperance of the noble *Greeks* before *Troy*, observed, that it was not found they fed on fish, though they lay so long near the *Hellespont*; and was only observed in the companions of *Menelaus*, that being almost starved, betook themselves to fishing about *Pharos*.

Odyss. 4'.

Nor will (I fear) the attest or prescript of Philosophers and Physitians, be a sufficient ground to confirm or warrant common practice, as is deducible from ancient Writers, from *Hippocrates*, *Galen*, *Simeon*, *Sethi*: and the later tracts of *Nonnus* and *Castellanus*. So *Aristotle* and *Albertus* commend the flesh of young Hawks: *Galen* the flesh of Foxes about Autumn when they feed on Grapes: but condemneth Quails, and ranketh Geese but with Ostriches; which notwithstanding, present practice and every table extolleth. Men think they have fared hardly, if in times of

Non de re cibaria. *Cast.* de esu carnium. *Gal.* Alim. fac. lib. 3.

extremity they have descended so low as Dogs: but *Galen* delivereth, that young, fat and gelded, they were the food of many Nations: and *Hippocrates* ranketh the flesh of Whelps with that of Birds: who also commends them against the Spleen, and to promote conception. The opinion in *Galens* time, which *Pliny* also followeth, deeply condemned Horse-flesh, and conceived the very blood thereof destructive; but no diet is more common among the *Tartars*, who also drink their blood. And though this may only seem an adventure of *Northern* stomacks, yet as *Herodotus* tells us, in the hotter clime of *Persia*, the same was a convivial dish, and solemnly eaten at the feasts of their nativities: whereat they dressed whole Horses, Camels and Asses; contemning the Poverty of *Grecian* feasts, as unfurnish'd of dishes sufficient to fill the bellies of their guests. CHAP. XXV *Gal.* Simpl. fac. lib. 3. *Hip.* de morbis de superfit.

Again, While we confine our diet in several places, all things almost are eaten, if we take in the whole earth: for that which is refused in one country, is accepted in another, and in the collective judgment of the world, particular distinctions are overthrown. Thus were it not hard to shew, that Tigers, Elephants, Camels, Mice, Bats and others, are the food of several countries; and *Lerius* with others delivers, that some *Americans* eat of all kinds, not refraining Toads and Serpents: and some have run so high, as not to spare the flesh of man: a practise inexcusable, nor to be drawn into example, a diet beyond the rule and largest indulgence of God.

As for the objection against beasts and birds of prey, it acquitteth not our practice, who observe not this distinction in fishes: nor regard the same in our diet of Pikes, Perches and Eels; Nor are we excused

CHAP. XXV herein, if we examine the stomacks of Mackerels, Cods, and Whitings. Nor is the foulness of food sufficient to justifie our choice; for (beside that their natural heat is able to convert the same into laudable aliment) we refuse not many whose diet is more impure then some which we reject; as may be considered in hogs, ducks, puets, and many more.

Thus we perceive the practice of diet doth hold no certain course, nor solid rule of selection or confinement; Some in an indistinct voracity eating almost any, others out of a timorous pre-opinion, refraining very many. Wherein indeed necessity, reason and Physick, are the best determinators. Surely many animals may be fed on, like many plants; though not in alimental, yet medical considerations: Whereas having raised Antipathies by prejudgement or education, we often nauseate proper meats, and abhor that diet which disease or temper requireth.

A problem. Now whether it were not best to conform unto the simple diet of our fore-fathers; whether pure and simple waters were not more healthfull then fermented liquors; whether there be not an ample sufficiency without all flesh, in the food of honey, oyl, and the several parts of milk: in the variety of grains, pulses, and all sorts of fruits; since either bread or beverage may be made almost of all? whether nations have rightly confined unto several meats? or whether the common food of one countrey be not more agreeable unto another? how indistinctly all tempers apply unto the same, and how the diet of youth and old age is confounded: were considerations much concerning health, and might prolong our days, but must not this discourse.

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CHAPTER XXVI

Of Sperma-Ceti, and the Sperma-Ceti Whale.

WHAT Sperma-Ceti is, men might justly doubt, since the learned *Hofmannus* in his work of Thirty years, saith plainly, *Nescio quid sit.* And therefore need not wonder at the variety of opinions; while some conceived it to be *flos maris*, and many, a bituminous substance floating upon the sea. De medicamentis officin.

That it was not the spawn of the Whale, according to vulgar conceit, or nominal appellation Phylosophers have always doubted, not easily conceiving the Seminal humour of Animals, should be inflamable; or of a floating nature.

That it proceedeth from a Whale, beside the relation of *Clusius* and other learned observers, was indubitably determined, not many years since by a Sperma-Ceti Whale, cast on our coast of *Norfolk.* Which, to lead on further inquiry, we cannot omit to inform. It contained no less then sixty foot in length, the head somewhat peculiar, with a large prominency over the mouth; teeth only in the lower Jaw, received into fleshly sockets in the upper. The Weight of the largest about two pound: No gristly substances in the mouth, commonly called Whale-bones; Only two short finns seated forwardly on the back; the eyes but small, the pizell large, and prominent. A lesser Whale of this kind above twenty years ago, was cast upon the same shore. Near Wells. Near Hunstanton.

The discription of this Whale seems omitted by *Gesner*, *Rondeletius*, and the first Editions of *Aldro-*

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vandus; but describeth the latin impression of *Pareus*, in the Exoticks of *Clusius*, and the natural history of *Nirembergius*; but more amply in Icons and figures of *Johnstonus*.

Mariners (who are not the best Nomenclators) called it a *Jubartas*, or rather *Gibbartas*. Of the same appellation we meet with one in *Rondeletius*, called by the *French* Gibbar, from its round and Gibbous back. The name *Gibbarta* we find also given unto one kind of *Greenland* Whales: But this of ours seemed not to answer the Whale of that denomination; but was more agreeable unto the *Trumpa* or Sperma-Ceti Whale: according to the account of our *Greenland* describers in *Purchas*. And maketh the third among the eight remarkable Whales of that Coast.

Out of the head of this Whale, having been dead divers days, and under putrifaction, flowed streams of oyl and Sperma-Ceti; which was carefully taken up and preserved by the Coasters. But upon breaking up, the Magazin of Sperma-Ceti, was found in the head lying in folds and courses, in the bigness of goose eggs, encompassed with large flakie substances, as large as a mans head, in form of hony-combs, very white and full of oyl.

Some resemblance or trace hereof there seems to be in the *Physiter* or *Capidolio* of *Rondeletius*; while he delivers, that a fatness more liquid then oyl, runs from the brain of that animal; which being out, the Reliques are like the scales of *Sardinos* pressed into a mass; which melting with heat, are again concreted by cold. And this many conceive to have been the fish which swallowed *Jonas*. Although for the largeness of the mouth, and frequency in those seas, it may possibly be the *Lamia*.

Some part of the Sperma-Ceti found on the shore was pure, and needed little depuration; a great part mixed with fetid oyl, needing good preparation, and frequent expression, to bring it to a flakie consistency. And not only the head, but other parts contained it. For the carnous parts being roasted, the oyl dropped out, an axungious and thicker parts subsiding; the oyl it self contained also much in it, and still after many years some is obtained from it. CHAP. XXVI

Greenland Enquirers seldom meet with a Whale of this kind: and therefore it is but a contingent Commodity, not reparable from any other. It flameth white and candent like Camphire, but dissolveth not in *aqua fortis*, like it. Some lumps containing about two ounces, kept ever since in water, afford a fresh and flosculous smell. Well prepared and separated from the oyl, it is of a substance unlikely to decay, and may out last the oyl required in the Composition of *Mathiolus*.

Of the large quantity of oyl, what first came forth by expression from the Sperma-Ceti, grew very white and clear, like that of Almonds or Ben. What came by decoction was red. It was found to spend much in the vessels which contained it: It freezeth or coagulateth quickly with cold, and the newer soonest. It seems different from the oyl of any other animal, and very much frustrated the expectation of our soap-boylers, as not incorporating or mingling with their lyes. But it mixeth well with painting Colours, though hardly drieth at all. Combers of wooll made use hereof, and Country people for cuts, aches and hard tumors. It may prove of good Medical use; and serve for a ground in compounded oyls and Balsams. Distilled, it affords a strong oyl, with a quick and

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piercing water. Upon Evaporation it gives a balsame, which is better performed with Turpentine distilled with Sperma-Ceti.

Had the abominable scent permitted, enquiry had been made into that strange composure of the head, and hillock of flesh about it. Since the Work-men affirmed, they met with *Sperma-Ceti* before they came to the bone, and the head yet preserved, seems to confirm the same. The Sphincters inserving unto the Fistula or spout, might have been examined, since they are so notably contrived in other cetaceous Animals; as also the Larynx or Throtle, whether answerable unto that of Dolphins and Porposes in the strange composure and figure which it maketh. What figure the stomack maintained in this Animal of one jaw of teeth, since in Porposes, which abound in both, the ventricle is trebly divided, and since in that formerly taken nothing was found but Weeds and a Loligo. The heart, lungs, and kidneys had not escaped; wherein are remarkable differences from Animals of the land, likewise what humor the bladder contained, but especially the seminal parts, which might have determined the difference of that humour; from this which beareth its name.

In vain it was to rake for Ambergreece in the panch of this *Leviathan*, as *Greenland* discoverers, and attests of experience dictate, that they sometimes swallow great lumps thereof in the Sea; insufferable fetour denying that enquiry. And yet if, as *Paracelsus* encourageth, Ordure makes the best Musk, and from the most fetid substances may be drawn the most odoriferous Essences; all that had not *Vespasians* Nose, might boldly swear, here was a subject fit for such extractions.

Cui dulcis odor lucri ex re qualibet.

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CHAPTER XXVII

Compendiously of sundry Tenents concerning other Animals, which examined, prove either false or dubious.

1. AND first from great Antiquity, and before the Melody of *Syrens*, the Musical note of Swans hath been commended, and that they sing most sweetly before their death. For thus we read in *Plato*, that from the opinion of *Metempsuchosis*, or transmigration of the souls of men into the bodies of beasts most sutable unto their humane condition, after his death, *Orpheus* the Musician became a Swan. Thus was it the bird of *Apollo* the god of Musick by the *Greeks*; and an Hieroglyphick of musick among the *Egyptians*, from whom the *Greeks* derived the conception; hath been the affirmation of many Latines, and hath not wanted assertors almost from every Nation.

Of Swans, and their singing before death.

All which notwithstanding, we find this relation doubtfully received by *Ælian*, as an hear-say account by *Bellonius*, as a false one by *Pliny*, expresly refuted by *Myndius* in *Athenæus*; and severely rejected by *Scaliger*; whose words unto *Cardan* are these: *De Cygni vero cantu suavissimo quem cum parente mendaciorum Græcia jactare ausus est, ad Luciani tribunal, apud quem novi aliquid dicas, statuo.* Authors also that countenance it, speak not satisfactorily of it. Some affirming they sing not till they die; some that they sing, yet die not. Some speak generally, as though this note were in all; some but particularly, as though it were only in some; some in places remote, and where we can have no trial of it; others in places where every experience can refute it; as *Aldrovandus*

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upon relation delivered, concerning the Musick of the Swans on the river of *Thames* near *London*.

The figuration to be found in Elks, and not in common Swans.

Now that which countenanceth, and probably confirmeth this opinion, is the strange and unusual conformation of the wind pipe, or vocal organ in this animal; observed first by *Aldrovandus*, and conceived by some contrived for this intention. For in its length it far exceedeth the gullet; and hath in the chest a sinuous revolution, that is, when it ariseth from the lungs, it ascendeth not directly unto the throat, but descending first into a capsulary reception of the breast bone; by a Serpentine and Trumpet recurvation it ascendeth again into the neck; and so by the length thereof a great quantity of air is received, and by the figure thereof a Musical modulation effected. But to speak indifferently, this formation of the Weazon, is not peculiar unto the Swan, but common also unto the Platea or Shovelard, a bird of no Musical throat; And as *Aldrovandus* confesseth, may thus be contrived in the Swan to contain a larger stock of air, whereby being to feed on weeds at the bottom, they might the longer space detain their heads under water. But were this formation peculiar, or had they unto this effect an advantage from this part: yet have they a known and open disadvantage from another; that is, a flat bill. For no Latirostrous animal (whereof nevertheless there are no slender numbers) were ever commended for there note, or accounted among those animals which have been instructed to speak.

When therefore we consider the dissention of Authors, the falsity of relations, the indisposition of the Organs, and the immusical note of all we ever beheld or heard of; if generally taken and comprehending all Swans, or of all places, we cannot assent

thereto. Surely he that is bit with a Tarantula, shall never be cured by this Musick; and with the same hopes we expect to hear the harmony of the Spheres. CHAP. XXVII

2. That there is a special propriety in the flesh of Peacocks, roast or boiled, to preserve a long time incorrupted, hath been the assertion of many; stands yet confirmed by *Austin, De Civitate Dei*; by *Gygas Sempronius*, in *Aldrovandus*; and the same experiment we can confirm our selves, in the brawn or fleshly parts of Peacoks so hanged up with thred, that they touch no place whereby to contract a moisture; and hereof we have made trial both in summer and winter. The reason, some, I perceive, attempt to make out from the siccity and driness of its flesh, and some are content to rest in a secret propriety thereof. As for the siccity of the flesh, it is more remarkable in other animals, as Eagles, Hawks, and birds of prey; That it is a propriety or agreeable unto none other, we cannot with reason admit: for the same preservation, or rather incorruption we have observed in the flesh of Turkeys, Capons, Hares, Partridge, Venison, suspended freely in the air, and after a year and a half, dogs have not refused to eat them. *Of the Peacock.*

As for the other conceit, that a Peacok is ashamed when he looks on his legs, as is commonly held, and also delivered by *Cardan*; beside what hath been said against it by *Scaliger*; let them believe that hold specificial deformities; or that any part can seem unhandsome to their eyes, which hath appeared good and beautiful unto their makers. The occasion of this conceit, might first arise from a common observation, that when they are in their pride, that is, advance their train, if they decline their neck to the ground, they presently demit, and let fall the same: which indeed they cannot otherwise do; for contracting their body,

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and being forced to draw in their foreparts to establish the hinder in the elevation of the train; if the foreparts depart and incline to the ground, the hinder grow too weak, and suffer the train to fall. And the same in some degree is also observable in Turkeys.

Of the Stork.

3. That Storks are to be found, and will only live in Republikes or free States, is a petty conceit to advance the opinion of popular policies, and from Antipathies in nature, to disparage Monarchical government. But how far agreeable unto truth, let them consider who read in *Pliny*, that among the *Thessalians* who were governed by Kings, and much abounded with Serpents, it was no less then capital to kill a Stork. That the Ancient *Egyptians* honoured them, whose government was from all times Monarchical. That *Bellonius* affirmeth, men make them nests in *France*. That relations make them common in *Persia*, and the dominions of the great *Turk*. And lastly, how *Jeremy* the Prophet delivered himself unto his countreymen, whose government was at that time Monarchical. The Stork in the heaven knowing her appointed time, the Turtle, Crane and Swallow observe the time of their coming, but my people know not the judgment of the Lord. Wherein to exprobate their stupidity, he induceth the providence of Storks. Now if the bird had been unknown, the illustration had been obscure, and the exprobation not so proper.

Jer. 8. 7.

Of the Bittor.

4. That a Bittor maketh that mugient noise, or as we term it Bumping, by putting its bill into a reed as most believe, or as *Bellonius* and *Aldrovandus* conceive, by putting the same in water or mud, and after a while retaining the air by suddenly excluding it again, is not so easily made out. For my own part, though after diligent enquiry, I could never behold them in this

motion; Notwithstanding by others whose observations we have expressly requested, we are informed, that some have beheld them making this noise on the shore, their bills being far enough removed from reed or water; that is, first strongly attracting the air, and unto a manifest distention of the neck, and presently after with great contention and violence excluding the same again. As for what others affirm of putting their bill in water or mud, it is also hard to make out. For what may be observed from any that walketh the Fens, there is little intermission, nor any observable pawse, between the drawing in and sending forth of their breath. And the expiration or breathing forth doth not only produce a noise, but the inspiration or hailing in of the air, affordeth a sound that may be heard almost a flight-shot. CHAP. XXVII

Now the reason of this strange and peculiar noise, is deduced from the conformation of the wind-pipe, which in this bird is different from other volatiles. For at the upper extream it hath no fit Larinx, or throttle to qualify the sound, and at the other end, by two branches deriveth it self into the lungs. Which division consisteth only of Semicircular fibers, and such as attain but half way round the part; By which formation they are dilatable into larger capacities, and are able to contain a fuller proportion of air; which being with violence sent up the weazon, and finding no resistance by the Larinx, it issueth forth in a sound like that from caverns, and such as sometimes subterraneous eruptions, from hollow rocks afford. As *Aristotle* observeth in a Problem, and is observable in pitchers, bottles, and that instrument which *Aponensis* upon that Problem describeth, wherewith in *Aristotles* time Gardiners affrighted birds. *Sect.* 15.

CHAP. XXVII Whether the large perforations of the extremities of the weazon, in the *abdomen*, admitting large quantity of ayr within the cavity of its membrans, as it doth in Frogs; may not much assist this mugiency or boation, may also be considered. For such as have beheld them making this noise out of the water, observe a large distention in their bodies; and their ordinary note is but like that of a Raven.

Of Whelps. 5. That whelps are blind nine days and then begin to see, is the common opinion of all, and some will be apt enough to descend unto oaths upon it. But this I find not answerable unto experience, for upon a strict observation of many, I have scarce found any that see the ninth day, few before the twelfth, and the eyes of some not open before the fourteenth day. And this is agreeable unto the determination of *Aristotle*: who computeth the time of their anopsie or non-vision by that of their gestation. For some, saith he, do go with their young the sixt part of a year, two days over or under, that is, about sixty days or nine weeks; and the whelps of these see not till twelve days. Some go the fifth part of a year, that is, seventy-one days, and these, saith he, see not before the fourteenth day. Others do go the fourth part of the year, that is, three whole months, and these, saith he, are without sight no less then seventeen days. Wherein although the accounts be different, yet doth the least thereof exceed the term of nine days, which is so generally received. And this compute of *Aristotle* doth generally overthrow the common cause alleadged for this effect, that is, a precipitation or over-hasty exclusion before the birth be perfect, according unto the vulgar Adage, *Festinans canis cæcos parit catulos*: for herein the whelps of longest gestation, are also the latest in vision. The

manner hereof is this. At the first littering, their eyes are fastly closed, that is, by coalition or joining together of the eyelids, and so continue untill about the twelfth day; at which time they begin to separate, and may be easily divelled or parted asunder; they open at the inward Canthis or greater Angle of the eye, and so by degrees dilate themselves quite open. An effect very strange, and the cause of much obscurity, wherein as yet mens enquiries are blind, and satisfaction not easily acquirable. What ever it be, thus much may we observe, those animals are only excluded without sight, which are multiparous and multifidous, that is, which have many at a litter, and have also their feet divided into many portions. For the Swine, although multiparous, yet being bisulcous, and only cloven hoofed, is not excluded in this manner, but farrowed with open eyes, as other bisulcous animals. CHAP. XXVII

6. The Antipathy between a Toad and a Spider, and that they poisonously destroy each other, is very famous, and solemn stories have been written of their combats; wherein most commonly the victory is given unto the Spider. Of what Toads and Spiders it is to be understood would be considered. For the Phalangium and deadly Spiders, are different from those we generally behold in *England*. However the verity hereof, as also of many others, we cannot but desire; for hereby we might be surely provided of proper Antidotes in cases which require them; But what we have observed herein, we cannot in reason conceal; who having in a Glass included a Toad with several Spiders, we beheld the Spiders without resistance to sit upon his head and pass over all his body; which at last upon advantage he swallowed down, and that in *Of a Toad and a Spider.*

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few hours, unto the number of seven. And in the like manner will Toads also serve Bees, and are accounted enemies unto their Hives.

Of a Lion and a Cock.

7. Whether a Lion be also afraid of a Cock, as is related by many, and believed by most, were very easie in some places to make trial. Although how far they stand in fear of that animal, we may sufficiently understand, from what is delivered by *Camerarius*, whose words in his Symbola are these: *Nostris temporibus in Aula serenissimi Principis Bavariæ, unus ex Leonibus miris saltibus in vicinam cujusdam domus aream sese dimisit, ubi Gallinaceorum cantum aut clamores nihil reformidans, ipsos unà cum plurimis gallinis devoravit.* That is, In our time in the Court of the Prince of *Bavaria*, one of the Lions leaped down into a Neighbours yard, where nothing regarding the crowing or noise of the Cocks, he eat them up with many other Hens. And therefore a very unsafe defensative it is against the fury of this animal (and surely no better then Virginity or bloud Royal) which *Pliny* doth place in Cock broth: For herewith, saith he, whoever is anointed (especially if Garlick be boiled therein) no Lion or Panther will touch him. But of an higher nature it were, and more exalted Antipathy, if that were certain which *Proclus* delivers, that solary *Dæmons*, and such as appear in the shape of Lions, will disappear and vanish, if a Cock be presented upon them.

De sacrificiis et magia.

8. It is generally conceived, an Ear-wig hath no Wings, and is reckoned amongst impennous insects by many; but he that shall narrowly observe them, or shall with a needle put aside the short and sheathy cases on their back, may extend and draw forth two wings of a proportionable length for flight, and larger then in many flies. The experiment of *Pennius* is yet

more perfect, who with a Rush or Bristle so pricked them as to make them flie. CHAP. XXVII

9. That Worms are exanguious Animals, and such as have no bloud at all, is the determination of Philosophy, the general opinion of Scholars, and I know not well to dissent from thence my self. If so, surely we want a proper term whereby to express that humour in them which so strictly resembleth bloud: and we refer it unto the discernment of others what to determine of that red and sanguineous humor, found more plentifully about the Torquis or carneous Circle of great Worms in the Spring, affording in Linnen or Paper an indiscernable tincture from bloud. Or wherein that differeth from a vein, which in an apparent blew runneth along the body, and if dexterously pricked with a lancet, emitteth a red drop, which pricked on either side it will not readily afford. *Of Worms.*

In the upper parts of Worms, there are likewise found certain white and oval Glandulosities, which Authors term Eggs, and in magnifying Glasses, they also represent them; how properly, may also be enquired; since if in them there be distinction of Sexes, these Eggs are to be found in both. For in that which is presumed to be their coition, that is, their usual complication, or lateral adhesion above the ground, dividing suddenly with two Knives the adhering parts of both, I have found these Eggs in either.

10. That Flies, Bees, etc. do make that noise or humming sound by their mouth, or as many believe with their wings only, would be more warily asserted, if we consulted the determination of *Aristotle*, who as in sundry other places, so more expresly in his book of respiration, affirmeth this sound to be made by the illision of an inward spirit upon a pellicle or little

brane, by the inward and con-natural
determines, or the outward air as *Sc*
which affordeth this humming noise,
other parts may also concur hereto;
fest, if while they hum we lay our fi
or other parts; for thereupon will be
jarring motion like that which hap
blow on the teeth of a comb throug
if the head or other parts of the trunk
oyl, the sound will be much impaired,
for those being also dry and membi
attrition of the spirit do help to ad
And therefore also the sound is s
weather, and very weak in rainy sea
winter; for then the air is moist, and
growing weak, makes a languid and du
the parts.

Tainct. 11. There is found in the Summer a
called a Tainct, of a red colour, and s
that ten of the largest will hardly outw
by Country people is accounted a dea
Cows and Horses; who, if they suc
swell thereon, ascribe their death h
commonly say they have [illegible]

Chickens, Calves and Horses, and not in the singular number; yet never could find the least disturbance ensue. There must be therefore other causes enquired of the sudden death and swelling of cattle; and perhaps this insect is mistaken, and unjustly accused for some other. For some there are which from elder times have been observed pernicious unto cattle, as the Buprestis or Burstcow, the Pityocampe or Eruca Pinuum, by *Dioscorides*, *Galen* and *Ætius*, the Staphilinus described by *Aristotle* and others, or those red Phalangious Spiders like Cantharides mentioned by *Muffetas*. Now although the animal may be mistaken and the opinion also false, yet in the ground and reason which makes men most to doubt the verity hereof, there may be truth enough, that is, the inconsiderable quantity of this insect. For that a poison cannot destroy in so small a bulk, we have no reason to affirm. For if, as *Leo Africanus* reporteth, the tenth part of a grain of the poison of *Nubia*, will dispatch a man in two hours; if the bite of a Viper and sting of a Scorpion, is not conceived to impart so much; if the bite of an Asp will kill within an hour, yet the impression scarce visible, and the poison communicated not ponderable; we cannot as impossible reject this way of destruction; or deny the power of death in so narrow a circumscription. CHAP. XXVII granum Nubiæ.

12. Wondrous things are promised from the Glow-worm; from thence perpetual lights are pretended, and waters said to be distilled which afford a lustre in the night; and this is asserted by *Cardan*, *Albertus*, *Gaudentinus*, *Mizaldus*, and many more. But hereto we cannot with reason assent: for the light made by this animal depends much upon its life. For when they are dead they shine not, nor alwaies while they *Of the Glow-worm.*

CHAP. XXVII

live; but are obscure or light, according to the protrusion of their luminous parts, as observation will instruct us. For this flammeous light is not over all the body, but only visible on the inward side; in a small white part near the tail. When this is full and seemeth protruded, there ariseth a flame of a circular figure and Emerald green colour; which is discernable in any dark place in the day; but when it falleth and seemeth contracted, the light disappeareth, and the colour of the part only remaineth. Now this light, as it appeareth and disappeareth in their life, so doth it go quite out at their death. As we have observed in some, which preserved in fresh grass have lived and shined eighteen days; but as they declined, and the luminous humor dryed, their light grew languid, and at last went out with their lives. Thus also the *Torpedo*, which alive hath a power to stupifie at a distance, hath none upon contaction being dead, as *Galen* and *Rondeletius* particularly experimented. And this hath also disappointed the mischief of those intentions, which study the advancement of poisons; and fancy destructive compositions from Asps or Vipers teeth, from Scorpions or Hornet stings. For these omit their efficacy in the death of the individual, and act but dependantly on their forms. And thus far also those Philosophers concur with us, which held the Sun and Stars were living creatures, for they conceived their lustre depended on their lives; but if they ever died, their light must also perish.

It were a Notable piece of Art to translate the light from the *Bononian* Stone into another Body; he that would attempt to make a shining Water from *Glow-worms*, must make trial when the Splendent part is fresh and turgid. For even from the great *American*

Glow-worms, and Flaming *Flies*, the light declineth as the luminous humor dryeth. CHAP. XXVII

Now whether the light of animals, which do not occasionally shine from contingent causes, be of Kin unto the light of Heaven; whether the invisible flame of life received in a convenient matter, may not become visible, and the diffused ætherial light make little Stars by conglobation in idoneous parts of the compositum: whether also it may not have some original in the seed and spirit analogous unto the Element of Stars, whereof some glympse is observable in the little refulgent humor, at the first attempts of formation: Philosophy may yet enquire.

True it is, that a Glow-worm will afford a faint light, almost a days space when many will conceive it dead; but this is a mistake in the compute of death, and term of disanimation; for indeed, it is not then dead, but if it be distended will slowly contract it self again, which when it cannot do, it ceaseth to shine any more. And to speak strictly, it is no easie matter to determine the point of death in Insects and Creatures who have not their vitalities radically confined unto one part; for they are not dead when they cease to move or afford the visible evidences of life; as may be observed in Flies, who when they appear even desperate and quite forsaken of their forms; by vertue of the Sun or warm ashes will be revoked unto life, and perform its functions again.

Now whether this lustre, a while remaining after death, dependeth not still upon the first impression, and light communicated or raised from an inward spirit, subsisting a while in a moist and apt recipient, nor long continuing in this, or the more remarkable *Indian* Glow-worm; or whether it be of another

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Nature, and proceedeth from different causes of illumination; yet since it confessedly subsisteth so little a while after their lives, how to make perpetual lights, and sublunary moons thereof as is pretended, we rationally doubt, though not so sharply deny, with *Scaliger* and *Muffetus*.

13. The wisdom of the Pismire is magnified by all, and in the Panegyricks of their providence we alwaies meet with this, that to prevent the growth of Corn which they store up, they bite off the end thereof: And some have conceived that from hence they have their name in Hebrew: From whence ariseth a conceit that Corn will not grow if the extreams be cut or broken. But herein we find no security to prevent its germination; as having made trial in grains, whose ends cut off have notwithstanding suddenly sprouted, and accordingly to the Law of their kinds; that is, the roots of barley and oats at contrary ends, of wheat and rye at the same. And therefore some have delivered that after rainy weather they dry these grains in the Sun; which if effectual, we must conceive to be made in a high degree and above the progression of Malt; for that Malt will grow, this year hath informed us, and that unto a perfect ear.

Nemalah à Namal circumcidit.

A natural vicissitude of generation in Homogeneous things.

And if that be true which is delivered by many, and we shall further experiment, that a decoction of Toadstools if poured upon earth, will produce the same again: If Sow-thistles will abound in places manured with dung of Hogs, which feeds much upon that plant: If Horse-dung reproduceth oats; If winds and rains will transport the seminals of plants; it will not be easie to determine where the power of generation ceaseth. The forms of things may lie deeper then we conceive them; seminal principles may not be dead in

the divided atoms of plants: but wandering in the ocean of nature, when they hit upon proportionable materials, may unite, and return to their visible selves again. CHAP. XXVII

But the prudence of this Animal is by knawing, piercing, or otherwise, to destroy the little nebbe or principle of germination. Which notwithstanding is not easily discoverable; it being no ready business to meet with such grains in Ant-hils; and he must dig deep, that will seek them in the Winter.

CHAPTER XXVIII

Of some others.

THAT a Chicken is formed out of the yelk of the Egg, was the opinion of some Ancient Philosophers. Whether it be not the nutriment of the Pullet, may also be considered: Since umbilical vessels are carried unto it: Since much of the yelk remaineth after the Chicken is formed: Since in a Chicken newly hatched, the stomack is tincted yellow, and the belly full of yelk, which is drawn in at the navel or vessels towards the vent, as may be discerned in Chickens within a day or two before exclusion. *Of the Chicken.*

Whether the Chicken be made out of the white, or that be not also its aliment, is likewise very questionable: Since an umbilical vessel is derived unto it: Since after the formation and perfect shape of the Chicken, much of the white remaineth.

Whether it be not made out of the grando, gallature, germ or tred of the Egg, as, *Aquapendente* informeth

CHAP. XXVIII

us, seemed to many of doubt: for at the blunter end it is not discovered after the Chicken is formed; by this also the yelk and white are continued, whereby it may conveniently receive its nutriment from them both.

Now that from such slender materials, nature should effect this production it is no more then is observed in other animals; and even in grains and kernels, the greatest part is but the nutriment of that generative particle, so disproportionable unto it.

Of Eggs.

A greater difficulty in the doctrine of Eggs, is, how the sperm of the Cock prolificates and makes the oval conception fruitful, or how it attaineth unto every Egg, since the vitellary or place of the yelk is very high: Since the ovary or part where the white involveth it, is in the second region of the matrix, which is somewhat long and inverted: Since also a Cock will in one day fertilate the whole racemation or cluster of Eggs, which are not excluded in many weeks after.

But these at last, and how in the Cicatricula or little pale circle formation first beginneth, how the Grando or tredle, are but the poles and establishing particles of the tender membrans, firmly conserving the floating parts, in their proper places, with many other observables, that ocular Philosopher, and singular discloser of truth, Dr. *Harvey* hath discovered, in that excellent discourse of Generation; So strongly erected upon the two great pillars of truth, experience and solid reason.

That the sex is discernable from the figure of Eggs, or that Cocks or Hens proceed from long or round ones, as many contend, experiment will easily frustrate.

The *Ægyptians* observed a better way to hatch their Eggs in Ovens, then the *Babylonians* to roast

them at the bottom of a sling, by swinging them round about, till heat from motion had concocted them; for that confuseth all parts without any such effect. CHAP. XXVIII

Though slight distinction be made between boiled and roasted Eggs, yet is there no slender difference, for the one is much drier then the other: the Egg expiring less in the elixation or boiling; whereas in the assation or roasting, it will sometimes abate a dragm; that is, threescore grains in weight. So a new laid Egg will not so easily be boiled hard, because it contains a greater stock of humid parts; which must be evaporated, before the heat can bring the inexhalable parts into consistence.

Why the Hen hatcheth not the Egg in her belly, or maketh not at least some rudiment thereof within her self, by the natural heat of inward parts, since the same is performed by incubation from an outward warmth after? Why the Egg is thinner at one extream? Why there is some cavity or emptiness at the blunter end? Why we open them at that part? Why the greater end is first excluded? Why some Eggs are all red, as the Kestrils; some only red at one end, as those of Kites and Buzzards? why some Eggs are not Oval but Round, as those of fishes? etc. are problems, whose decisions would too much enlarge this discourse.

That Snakes and Vipers do sting or transmit their mischief by the tail, is a common expression not easily to be justified; and a determination of their venoms unto a part, wherein we could never find it; the poison lying about the teeth, and communicated by bite, in such are destructive. And therefore when biting Serpents are mentioned in the Scripture, they are not *Of Snakes, etc.*

CHAP. XXVIII differentially set down from such as mischief by stings; nor can conclusions be made conformable to this opinion, because when the Rod of *Moses* was turned into a Serpent, God determinately commanded him to take up the same by the tail.

Nor are all Snakes of such empoisoning qualities, as common opinion presumeth; as is confirmable from the ordinary green Snake with us, from several histories of domestick Snakes, from Ophiophagous nations, and such as feed upon Serpents.

Surely the destructive delusion of Satan in this shape, hath much enlarged the opinion of their mischief. Which notwithstanding was not so high with the heathens, in whom the Devil had wrought a better opinion of this animal, it being sacred unto the *Egyptians*, *Greeks* and *Romans*, and the common symbole of sanity. In the shape whereof *Æsculapius* the God of health appeared unto the *Romans*, accompanied their Embassadors to *Rome* from *Epidaurus*; and the same did stand in the *Tiberine* Isle upon the Temple of *Æsculapius*.

Some doubt many have of the Tarantula, or poisonous Spider of *Calabria*, and that magical cure of the bite thereof by Musick. But since we observe that many attest it from experience: Since the learned *Kircherius* hath positively averred it, and set down the songs and tunes solemnly used for it; Since some also affirm the Tarantula it self will dance upon certain stroaks, whereby they set their instruments against its poison; we shall not at all question it.

Much wonder is made of the Boramez, that strange plant-animal or vegetable Lamb of *Tartary*, which Wolves delight to feed on, which hath the shape of a Lamb, affordeth a bloody juyce upon breaking, and

liveth while the plants be consumed about it. And yet if all this be no more, then the shape of a Lamb in the flower or seed, upon the top of the stalk, as we meet with the forms of Bees, Flies and Dogs in some others; he hath seen nothing that shall much wonder at it. CHAP. XXVIII

It may seem too hard to question the swiftness of Tigers, which hath therefore given names unto Horses, Ships and Rivers, nor can we deny what all have thus affirmed; yet cannot but observe, that *Jacobus Bontius* late Physitian at *Java* in the East *Indies*, as an ocular and frequent witness is not afraid to deny it; to condemn *Pliny* who affirmeth it, and that indeed it is but a slow and tardigradous animal, preying upon advantage, and otherwise may be escaped.

Many more there are whose serious enquiries we must request of others, and shall only awake considerations, Whether that common opinion that Snakes do breed out of the back or spinal marrow of man, doth build upon any constant root or seed in nature; or did not arise from contingent generation, in some single bodies remembred by *Pliny* or others, and might be paralleld since in living corruptions of the guts and other parts; which regularly proceed not to putrifactions of that nature.

Whether the Story of the Remora be not unreasonably amplified; whether that of Bernacles and Goose-trees be not too much enlarged; whether the common history of Bees will hold, as large accounts have delivered; whether the brains of Cats be attended with such destructive malignities, as *Dioscorides* and others put upon them.

As also whether there be not some additional help of Art, unto the Numismatical and Musical shells,

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which we sometimes meet with in conchylious collections among us?

Whether the fasting spittle of man be poison unto Snakes and Vipers, as experience hath made us doubt? Whether the Nightingals setting with her breast against a thorn, be any more then that she placeth some prickels on the outside of her nest, or roosteth in thorny and prickly places, where Serpents may least approach her? Whether Mice may be bred by putrifaction as well as univocall production, as may be easily believed, if that receit to make Mice out of wheat will hold, which *Helmont* hath delivered. Whether Quails from any idiosyncracy or peculiarity of constitution, do innocuously feed upon Hellebore, or rather sometime but medically use the same; because we perceive that Stares, which are commonly said harmlessly to feed on Hemlock, do not make good the tradition; and he that observes what vertigoes, cramps and convulsions follow thereon in these animals, will be of our belief.

Helm. Imago fermenti, *etc.*

THE FOURTH BOOK

Of many popular and received Tenents concerning Man, which examined, prove either false or dubious.

CHAPTER I

Of the Erectness of Man.

THAT only *Man* hath an Erect figure, and for to behold and look up toward heaven, according to that of the Poet, CHAP. I

Pronaque cum spectant animalia cætera terram,
Os homini sublime dedit, cælumque tueri
Jussit, et erectos ad sydera tollere vultus,

is a double assertion, whose first part may be true, if we take Erectness strictly, and so as *Galen* hath defined it; for they only, saith he, have an Erect figure, whose spine and thigh-bone are carried in right lines; and so indeed of any we yet know, *Man* only is Erect. For the thighs of other animals do stand at Angles with their spine, and have rectangular positions in Birds, and perfect Quadrupeds. Nor doth the Frog, though stretched out, or swimming, attain the rectitude of *Man*, or carry its thigh without all angularity. And thus is it also true, that Man only sitteth, if we define

What figure in animals is properly erect.

CHAP. I

What sciants or sitting.

sitting to be a firmation of the body upon the *Ischias*: wherein if the position be just and natural, the Thigh-bone lieth at right angles to the Spine, and the Leg-bone or Tibia to the Thigh. For others when they seem to sit, as *Dogs*, *Cats*, or *Lions*, do make unto their Spine acute angles with their Thigh, and acute to the Thigh with their Shank. Thus is it likewise true, what *Aristotle* alledgeth in that Problem; why *Man* alone suffereth pollutions in the Night, because *Man* only lyeth upon his Back; if we define not the same by every supine position, but when the Spine is in rectitude with the Thigh, and both with the arms lie parallel to the *Horizon*: so that a line through their Navel will pass through the Zenith and Centre of the Earth. And so cannot other Animals lie upon their Backs: for though the Spine lie parallel with the *Horizon*, yet will their Legs incline, and lie at angles unto it. And upon these three divers positions in *Man*, wherein the Spine can only be at right lines with the Thigh, arise those remarkable postures, prone, supine and erect; which are but differenced in situation, or in angular postures upon the Back, the Belly and the Feet.

ἐξονειρωκτικός.

But if Erectness be popularly taken, and as it is largely opposed unto proneness, or the posture of animals looking downwards, carrying their venters or opposite part to the Spine, directly towards the Earth, it may admit of question. For though in *Serpents* and *Lizards* we may truly allow a proneness, yet *Galen* acknowledgeth that perfect Quadrupeds, as *Horses*, *Oxen* and *Camels*, are but partly prone, and have some part of Erectness. And *Birds* or flying Animals, are so far from this kind of proneness, that they are almost Erect; advancing the Head and Breast in their pro-

gression, and only prone in the Act of volitation or flying. And if that be true which is delivered of the *Pengin* or *Anser Magellanicus*, often described in Maps about those *Straits*, that they go Erect like *Men*, and with their Breast and Belly do make one line perpendicular unto the axis of the Earth; it will almost make up the exact Erectness of *Man*. Nor will that Insect come very short which we have often beheld, that is, one kind of Locust which stands not prone, or a little inclining upward, but in a large Erectness, elevating alwaies the two fore Legs, and sustaining it self in the middle of the other four: by *Zoographers* called *Mantis*, and by the common people of *Provence*, *Prega*, *Dio*, the Prophet and praying Locust; as being generally found in the posture of supplication, or such as resembleth ours, when we lift up our hands to Heaven.

CHAP. I

Observe also the Vrias Bellanii *and* Mergus major.

Describers of animals.

As for the end of this Erection; to look up toward Heaven; though confirmed by several testimonies, and the *Greek* Etymology of *Man*, it is not so readily to be admitted; and as a popular and vain conceit was Anciently rejected by *Galen*; who in his third, *De usu partium*, determines, that *Man* is Erect, because he was made with hands, and was therewith to exercise all Arts, which in any other figure he could not have performed; as he excellently declareth in that place, where he also proves that *Man* could have been made neither Quadruped nor Centaur.

And for the accomplishment of this intention, that is, to look up and behold the Heavens, *Man* hath a notable disadvantage in the Eye lid; whereof the upper is far greater than the lower, which abridgeth the sight upwards; contrary to those of *Birds*, who herein have the advantage of *Man*: Insomuch that the

CHAP. I

Learned *Plempius* is bold to affirm, that if he had had the formation of the Eye-lids, he would have contrived them quite otherwise.

Plemp. Ophthalmographia.

The ground and occasion of this conceit was a literal apprehension of a figurative expression in *Plato*, as *Galen* thus delivers; To opinion that *Man* is Erect to look up and behold the Heavens, is a conceit only fit for those that never saw the *Fish* Uranoscopus, that is, the Beholder of Heaven; which hath its Eyes so placed, that it looks up directly to Heaven; which *Man* doth not, except he recline, or bend his head backward: and thus to look up to Heaven, agreeth not only unto *Men*, but *Asses*; to omit *Birds* with long necks, which look not only upwards, but round about at pleasure. And therefore *Men* of this opinion understood not *Plato* when he said that *Man* doth *Sursum aspicere*; for thereby was not meant to gape, or look upward with the Eye, but to have his thoughts sublime; and not only to behold, but speculate their Nature, with the Eye of the understanding.

Now although *Galen* in this place makes instance but in one, yet are the other fishes, whose Eyes regard the Heavens, as Plane, and Cartilagineous *Fishes*; as *Pectinals*, or such as have their bones made laterally like a Comb; for when they apply themselves to sleep or rest upon the white side, their Eyes on the other side look upward toward Heaven. For *Birds*, they generally carry their heads Erectly like *Man*, and have advantage in their upper Eye-lid; and many that have long necks, and bear their heads somewhat backward, behold far more of the Heavens, and seem to look above the æquinoxial Circle. And so also in many Quadrupeds, although their progression be partly prone, yet is the sight of their Eye direct, not respecting the Earth but Heaven;

and make an higher Arch of altitude then our own. The position of a *Frog* with his head above water exceedeth these; for therein he seems to behold a large part of the Heavens, and the acies of his Eye to ascend as high as the Tropick; but he that hath beheld the posture of a *Bittor*, will not deny that it beholds almost the very *Zenith*. CHAP. I

Point of heaven over our heads.

CHAPTER II

Of the Heart.

THAT the *Heart* of Man is seated in the left side, is an asseveration, which strictly taken, is refutable by inspection, whereby it appears the base and centre thereof is in the midst of the chest; true it is, that the Mucro or Point thereof inclineth unto the left; for by this position it giveth way unto the ascension of the midriff, and by reason of the hollow vein could not commodiously deflect unto the right. From which diversion, nevertheless we cannot so properly say tis placed in the left, as that it consisteth in the middle, that is, where its centre resteth; for so do we usually say a Gnomon or Needle is in the middle of a Dial, although the extreams may respect the North or South, and approach the circumference thereof.

How a Mans heart is placed in his Body.

The ground of this mistake is a general observation from the pulse or motion of the *Heart*, which is more sensible on this side; but the reason hereof is not to be drawn from the situation of the *Heart*, but the site of the left ventricle wherein the vital Spirits are laboured; and also the great Artery that conveieth

CHAP. II

them out; both which are situated on the left. Upon this reason Epithems or cordial Applications are justly applied unto the left Breast; and the Wounds under the fifth Rib may be more suddenly destructive if made on the sinister side, and the Spear of the Souldier that peirced our Saviour, is not improperly described, when Painters direct it a little towards the left.

The other ground is more particular and upon inspection; for in dead Bodies especially lying upon the Spine, the *Heart* doth seem to incline unto the left. Which happeneth not from its proper site; but besides its sinistrous gravity, is drawn that way by the great Artery, which then subsideth and haleth the *Heart* unto it. And therefore strictly taken, the *Heart* is seated in the middle of the Chest; but after a careless and inconsiderate aspection, or according to the readiest sense of pulsation, we shall not quarrel, if any affirm it is seated toward the left. And in these considerations must *Aristotle* be salved, when he affirmeth the *Heart* of Man is placed in the left side, and thus in a popular acception may we receive the Periphrasis of *Persius*[1]; when he taketh the part under the left Pap for the *Heart*; and if rightly apprehended, it concerneth not this controversie, when it is said in *Ecclesiastes*: The *Heart* of a wise Man is in the right side, but that of a Fool in the left, for thereby may be implied, that the *Heart* of a wise Man delighteth in the right way, or in the path of Vertue; that of a Fool in the left or road of Vice; according to the mystery of the Letter of *Pythagoras*, or that expression in *Jonah*, concerning sixscore thousand, that could not discern between their right hand and their left, or knew not good from evil.

— Leva in parte mamillæ.

That assertion also that Man proportionally hath

the largest brain, I did I confess somewhat doubt; and conceived it might have failed in Birds, especially such as having little Bodies, have yet large Cranies, and seem to contain much Brain, as *Snipes*, *Woodcocks*, etc. But upon trial I find it very true. The Brains of a Man, *Archangelus* and *Bauhinus* observe, to weigh four pound, and sometime five and a half. If therefore a Man weigh one hundred and fourty pounds, and his Brain but five, his Weight is 27. times as much as his brain, deducting the weight of that five pound which is allowed for it. Now in a Snipe, which weighed four ounces two dragms, I find the Brains to weigh but half a dragm; so that the weight of the Body (allowing for the Brain) exceeded the weight of the Brain, sixty seven times and an half. CHAP. II

More controvertible it seemeth in the Brains of Sparrows, whose Cranies are rounder, and so of larger capacity: and most of all in the Heads of Birds, upon the first formation in the Egg, wherein the Head seems larger then all the Body, and the very Eyes almost as big as either. A Sparrow in the total we found to weigh seven dragms and four and twenty grans; whereof the Head a dragm, but the Brain not fifteen grains; which answereth not fully the proportion of the brain of Man. And therefore it is to be taken of the whole Head with the Brains, when *Scaliger* objecteth that the Head of a Man is the fifteenth part of his Body; that of a Sparrow, scarce the fifth. Histor. Animal. *lib.* 1.

CHAP. III

CHAPTER III

Of Pleurisies.

THAT *Pleurisies* are only on the left side, is a popular Tenent not only absurd but dangerous. From the misapprehension hereof, men omitting the opportunity of remedies, which otherwise they would not neglect. Chiefly occasioned by the Ignorance of *Anatomy* and the extent of the part affected; which in an exquisite *Pleurisie* is determined to be the skin or membrane which invested the Ribs, for so it is defined, *Inflammatio membranæ costas succingentis*; An Inflammation, either simple, consisting only of an hot and sanguineous affluxion; or else denominable from other humours, according to the predominancy of melancholy, flegm, or choler. The membrane thus inflamed, is properly called *Pleura*; from whence the disease hath its name; and this investeth not only one side, but overspreadeth the cavity of the chest, and affordeth a common coat unto the parts contained therein.

What a Pleurisie is.

Now therefore the *Pleura* being common unto both sides, it is not reasonable to confine the inflammation unto one, nor strictly to determine it is alwaies in the side; but sometimes before and behind, that is, inclining to the Spine or Breast-bone; for thither this Coat extendeth; and therefore with equal propriety we may affirm, that ulcers of the lungs, or Apostems of the brain do happen only in the left side; or that Ruptures are confinable unto one side, whereas the Peritoneum or Rib of the Belly may be broke, or its perforations relaxed in either.

CHAPTER IV

Of the Ring-finger.

AN opinion there is, which magnifies the fourth *Finger* of the left Hand; presuming therein a cordial relation, that a particular vessel, nerve, vein or artery is conferred thereto from the heart, and therefore that especially hath the honour to bear our Rings. Which was not only the Christian practice in Nuptial contracts, but observed by Heathens, as *Alexander ab Alexandro*, *Gellius*, *Macrobius* and *Pierius* have delivered, as *Levinus Lemnius* hath confirmed, who affirms this peculiar vessel to be an artery, and not a Nerve, as Antiquity hath conceived it; adding moreover that *Rings* hereon peculiarly affect the Heart; that in Lipothymies or swoundings he used the frication of this *Finger* with saffron and gold: that the ancient Physitians mixed up their Medicines herewith; that this is seldom or last of all affected with the Gout, and when that becometh nodous, Men continue not long after. Notwithstanding all which we remain unsatisfied, nor can we think the reasons alleadged sufficiently establish the preheminency of this *Finger*.

For first, Concerning the practice of Antiquity, the custom was not general to wear their *Rings* either on this hand or *Finger*; for it is said, and that emphatically in *Jeremiah*, *Si fuerit Jeconias filius Joachim regis Judæ annulus in manu dextrâ meâ, inde evellam eum*: Though *Coniah* the son of *Joachim* King of *Judah*, were the signet on my right Hand, yet would I pluck thee thence. So is it observed by *Pliny*, that in the portraits of their Gods, the *Rings* were worn on the *Finger* next the *Thumb*; that the *Romans* wore them

CHAP. IV

also upon their little Finger, as *Hero* is described in *Petronius*; some wore them on the middle *Finger*, as the ancient *Gaules* and *Britans*; and some upon the fore-*Finger*, as is deduceable from *Julius Pollux*: who names that *Ring* Corionos.

Rings anciently of Iron.

Again, That the practice of the ancients, had any such respect of cordiality or reference unto the Heart, will much be doubted, if we consider their Rings were made of iron; such was that of *Prometheus*, who is conceived the first that brought them in use. So, as *Pliny* affirmeth, for many years the *Senators* of *Rome* did not wear any Rings of Gold; but the slaves wore generally Iron Rings until their manumission or preferment to some dignity. That the *Lacedemonians* continued their Iron Rings unto his daies, *Pliny* also delivereth, and surely they used few of Gold; for beside that *Lycurgus* prohibited that mettal, we read in *Athenæus*, that having a desire to guild the face of *Apollo*, they enquired of the Oracle where they might purchase so much Gold; and were directed unto *Cræsus* King of *Lydia*.

Moreover whether the Ancients had any such intention, the grounds which they conceived in Vein, Nerve or Artery, are not to be justified, nor will inspection confirm a peculiar vessel in this Finger. For as *Anatomy* informeth, the Basilica vein dividing into two branches below the cubit, the outward sendeth two surcles unto the thumb, two unto the fore-finger, and one unto the middle finger in the inward side; the other branch of the Basilica sendeth one surcle unto the outside of the middle finger, two unto the Ring, and as many unto the little fingers; so that they all proceed from the Basilica, and are in equal numbers derived unto every one. In the same manner are the branches of the axillary artery distributed into

the Hand; for below the cubit it divideth into two parts, the one running along the *Radius*, and passing by the wrest or place of the pulse, is at the *Fingers* subdivided into three Branches; whereof the first conveyeth two surcles unto the *Thumb*, the second as many to the fore-*Finger*, and the third one unto the middle *Finger*; the other or lower division of the artery descendeth by the ulna, and furnisheth the other *Fingers*; that is the middle with one surcle, and the *Ring* and little *Fingers* with two. As for the Nerves, they are disposed much after the same manner, and have their original from the Brain, and not the Heart, as many of the Ancients conceived; which is so far from affording Nerves unto other parts, that it receiveth very few it self from the sixth conjugation, or pair of Nerves in the Brain. CHAP. IV *Whence the Nerves proceed.*

Lastly, These propagations being communicated unto both Hands, we have no greater reason to wear our *Rings* on the left, then on the right; nor are there cordial considerations in the one, more then the other. And therefore when *Forestus* for the stanching of blood makes use of Medical applications unto the fourth *Finger*, he confines not that practice unto the left, but varieth the side according to the nostril bleeding. So in Feavers, where the Heart primarily suffereth, we apply Medicines unto the wrests of either arm; so we touch the pulse of both, and judge of the affections of the Heart by the one as well as the other. And although in indispositions of Liver or Spleen, considerations are made in *Phlebotomy* respectively to their situation; yet when the Heart is affected, Men have thought it as effectual to bleed on the right as the left; and although also it may be thought, a nearer respect is to be had of the left, because the

CHAP. IV great artery proceeds from the left ventricle, and so is nearer that arm; it admits not that consideration. For under the channel bones the artery divideth into two great branches, from which trunk or point of division, the distance unto either Hand is equal, and the consideration also answerable.

All which with many respective Niceties, in order unto parts, sides, and veines, are now become of less consideration, by the new and noble doctrine of the circulation of the blood.

And therefore *Macrobius* discussing the point, hath alleadged another reason; affirming that the gestation of *Rings* upon this Hand and *Finger*, might rather be used for their conveniency and preservation, then any cordial relation. For at first (saith he) it was both free and usual to wear *Rings* on either Hand; but after that luxury encreased, when pretious gems and rich insculptures were added, the custom of wearing them on the right Hand was translated unto the left; for that Hand being less imployed, thereby they were best preserved. And for the same reason they placed them on this *Finger*; for the *Thumb* was too active a *Finger*, and is commonly imployed with either of the rest: the Index or fore-*Finger* was too naked whereto to commit their pretiosities, and hath the tuition of the *Thumb* scarce unto the second joint: the middle and little *Finger* they rejected as extreams, and too big or too little for their *Rings*, and of all chose out the fourth, as being least used of any, as being guarded on either side, and having in most this peculiar condition, that it cannot be extended alone and by it self, but will be accompanied by some *Finger* on either side. And to this opinion assenteth *Alexander ab Alexandro*, *Annulum nuptialem prior ætas in sinistrâ ferebat, crediderim ne attereretur.*

Now that which begat or promoted the common opinion, was the common conceit that the Heart was seated on the left side; but how far this is verified, we have before declared. The *Egyptian* practice hath much advanced the same, who unto this *Finger* derived a Nerve from the Heart; and therefore the Priest anointed the same with precious oyls before the Altar. But how weak *Anatomists* they were, which were so good Embalmers, we have already shewed. And though this reason took most place, yet had they another which more commended that practice: and that was the number whereof this *Finger* was an Hieroglyphick. For by holding down the fourth *Finger* of the left Hand, while the rest were extended, they signified the perfect and magnified number of six. For as *Pierius* hath graphically declared, Antiquity expressed numbers by the *Fingers* of either Hand: on the left they accounted their digits and articulate numbers unto an hundred; on the right Hand hundreds and thousands; the depressing this *Finger*, which in the left Hand implied but six, in the right indigitated six hundred. In this way of numeration, may we construe that of *Juvenal* concerning *Nestor*, CHAP. IV

> —— *Qui per tot sæcula mortem*
> *Distulit, atque suos jam dextrâ computat annos.*

And however it were intended, in this sense it will be very elegant what is delivered of Wisdom, *Prov.* 3. Length of daies is in her right Hand, and in her left Hand riches and honour.

As for the observation of *Lemnius* an eminent Physitian, concerning the Gout; however it happened in his Country, we may observe it otherwise in ours; that is, that chiragrical persons do suffer in this *Finger* as well as in the rest, and sometimes first of all, and *Hand-Gouty persons.*

CHAP. IV sometimes no where else. And for the mixing up medicines herewith; it is rather an argument of opinion, then any considerable effect; and we as highly conceive of the practice in *Diapalma*, that is, in the making of that plaister, to stir it with the stick of a Palm.

CHAPTER V

Of the right and left Hand.

IT is also suspicious, and not with that certainty to be received, what is generally believed concerning the right and left hand; that Men naturally make use of the right, and that the use of the other is a digression or aberration from that way which nature generally intendeth. We do not deny that almost all Nations have used this hand, and ascribed a preheminence thereto: hereof a remarkable passage there is in the 48. of *Genesis*, And *Joseph* took them both, *Ephraim* in his right hand towards *Israels* left hand, and *Manasses* in his left hand towards *Israels* right hand, and *Israel* stretched out his right hand and laid it upon *Ephraims* head, who was the younger, and his left hand upon *Manasses* head, guiding his hands wittingly, for *Manasses* was the first-born; and when *Joseph* saw that his father laid his right hand upon the head of *Ephraim*, it displeased him, and he held up his fathers hand to remove it from *Ephraims* head unto *Manasses* head, and *Joseph* said, Not so my father, for this is the first-born, put thy right hand upon his head: The like appeareth from the ordinance of *Moses* in the consecration of their Priests, Then

shalt thou kill the Ram, and take of his blood, and put it upon the tip of the right ear of *Aaron*, and upon the tip of the right ear of his sons, and upon the thumb of the right hand, and upon the great toe of the right foot, and sprinkle the blood on the Altar round about. That the *Persians* were wont herewith to plight their faith, is testified by *Diodorus*: That the *Greeks* and *Romans* made use hereof, beside the testimony of divers Authors, is evident from their custom of discumbency at their meals, which was upon their left side, for so their right hand was free, and ready for all service. As also from the conjunction of the right hands and not the left observable in the *Roman* medals of concord. Nor was this only in use with divers Nations of Men, but was the custom of whole Nations of Women; as is deduceable from the Amazones in the amputation of their right breast, whereby they had the freer use of their bow. All which do seem to declare a natural preferment of the one unto motion before the other; wherein notwithstanding in submission to future information, we are unsatisfied unto great dubitation. CHAP. V

For first, if there were a determinate prepotency in the right, and such as ariseth from a constant root in nature, we might expect the same in other animals, whose parts are also differenced by dextrality; wherein notwithstanding we cannot discover a distinct and complying account; for we find not that *Horses*, *Buls*, or *Mules*, are generally stronger on this side. As for Animals whose forelegs more sensibly supply the use of arms, they hold, if not an equality in both, a prevalency oft-times in the other, as *Squirrels*, *Apes*, and *Monkies*; the same is also discernable in *Parrets*, who feed themselves more commonly by the left-leg, and

CHAP. V

Men observe that the Eye of a Tumbler is biggest, not constantly in one, but in the bearing side.

That there is also in Men a natural prepotency in the right, we cannot with constancy affirm, if we make observation in children; who permitted the freedom of both, do oft-times confine unto the left, and are not without great difficulty restrained from it. And therefore this prevalency is either uncertainly placed in the laterality, or custom determines its differency. Which is the resolution of *Aristotle* in that Problem, which enquires why the right side being better then the left, is equal in the senses? because, saith he, the right and left do differ by use and custom, which have no place in the senses. For right and left as parts inservient unto the motive faculty, are differenced by degrees from use and assuefaction, according whereto the one grows stronger and oft-times bigger then the other. But in the senses it is otherwise; for they acquire not their perfection by use or custom, but at the first we equally hear and see with one Eye, as well as with another. And therefore, were this indifferency permitted, or did not constitution, but nature determine dextrality, there would be many more Scevolaes then are delivered in story; nor needed we to draw examples of the left, from the sons of the right hand; as we read of seven thousand in the Army of the *Benjamites*. True it is, that although there be an indifferency in either, or a prevalency indifferent in one, yet is it most reasonable for uniformity, and sundry respective uses, that Men should apply themselves to the constant use of one; for there will otherwise arise anomalous disturbances in manual actions, not only in civil and artificial, but also in Military affairs, and the several actions of war.

Whence the dextral activity in men proceeds.

Benjamin filius dextræ.

CHAP. V

Secondly, The grounds and reasons alleadged for the right, are not satisfactory, and afford no rest in their decision. *Scaliger* finding a defect in the reason of *Aristotle*, introduceth one of no less deficiency himself; *Ratio materialis* (saith he) *sanguinis crassitudo simul et multitudo*; that is, the reason of the vigour of this side, is the crassitude and plenty of blood; but this is not sufficient; for the crassitude or thickness of blood affordeth no reason why one arm should be enabled before the other, and the plenty thereof, why both not enabled equally. *Fallopius* is of another conceit, deducing the reason from the Azygos or *vena sine pari*, a large and considerable vein arising out of the *cava* or hollow vein, before it enters the right ventricle of the Heart, and placed only in the right side. But neither is this perswasory; for the Azygos communicates no branches unto the arms or legs on either side, but disperseth into the Ribs on both, and in its descent doth furnish the left Emulgent with one vein, and the first vein of the loins on the right side with another; which manner of derivation doth not confer a peculiar addition unto either. *Cœlius Rodiginus* undertaking to give a reason of Ambidexters and *Left-handed* Men, delivereth a third opinion: Men, saith he, are Ambidexters, and use both *Hands* alike, when the heat of the Heart doth plentifully disperse into the left side, and that of the Liver into the right, and the spleen be also much dilated; but Men are *Left-handed* when ever it happeneth that the Heart and Liver are seated on the left-side; or when the Liver is on the right side, yet so obducted and covered with thick skins, that it cannot diffuse its vertue into the right. Which reasons are no way satisfactory; for herein the spleen is injustly introduced to invigorate the sinister

CHAP. V

side, which being dilated it would rather infirm and debilitate. As for any tunicles or skins which should hinder the Liver from enabling dextral parts; we must not conceive it diffuseth its vertue by meer irradiation, but by its veins and proper vessels, which common skins and teguments cannot impede. And for the seat of the Heart and Liver in one side, whereby Men become *Left-handed*, it happeneth too rarely to countenance an effect so common; for the seat of the Liver on the left side is monstrous, and rarely to be met with in the observations of Physitians. Others not considering ambidextrous and *Left-handed* Men, do totally submit unto the efficacy of the Liver; which though seated on the right side, yet by the subclavian division doth equidistantly communicate its activity unto either Arm; nor will it salve the doubts of observation; for many are *Right-handed* whose Livers are weakly constituted, and many use the left, in whom that part is strongest; and we observe in Apes, and other animals, whose Liver is in the right, no regular prevalence therein.

And therefore the brain, especially the spinal marrow, which is but the brain prolonged, hath a fairer plea hereto; for these are the principles of motion, wherein dextrality consists; and are divided within and without the Crany. By which division transmitting Nerves respectively unto either side; according to the indifferency, or original and native prepotency, there ariseth an equality in both, or prevalency on either side. And so may it be made out, what many may wonder at, why some most actively use the contrary Arm and Leg; for the vigour of the one dependeth upon the upper part of the spine, but the other upon the lower.

And therefore many things are Philosophically de-

livered concerning right and left, which admit of some suspension. That a Woman upon a masculine conception advanceth her right Leg, will not be found to answer strick observation. That males are conceived in the right side of the womb, females in the left, though generally delivered, and supported by ancient testimony, will make no infallible account; it happening oft times that males and females do lie upon both sides, and Hermaphrodites for ought we know on either. It is also suspitious what is delivered concerning the right and left testicle, that males are begotten from the one, and females from the other. For though the left seminal vein proceedeth from the emulgent, and is therefore conceived to carry down a serous and feminine matter; yet the seminal Arteries which send forth the active materials, are both derived from the great Artery. Beside this original of the left vein was thus contrived, to avoid the pulsation of the great Artery, over which it must have passed to attain unto the testicle. Nor can we easily infer such different effects from the divers situation of parts which have one end and office; for in the kidneys which have one office, the right is seated lower then the left, whereby it lieth free, and giveth way unto the Liver. And therefore also that way which is delivered for masculine generation, to make a strait ligature about the left testicle, thereby to intercept the evacuation of that part, deserveth consideration. For one sufficeth unto generation, as hath been observed in semicastration, and oft times in carnous ruptures. Beside, the seminal ejaculation proceeds not immediately from the testicle, but from the spermatick glandules; and therefore *Aristotle* affirms (and reason cannot deny) that although there be nothing diffused from the testicles, an *Horse* or *Bull*

CHAP. V

How an Horse or Bull may generate after they be gelt.

CHAP. V may generate after castration; that is, from the stock and remainder of seminal matter, already prepared and stored up in the Prostates or grandules of generation.

Thirdly, Although we should concede a right and left in Nature, yet in this common and received account we may err from the proper acception; mistaking one side for another; calling that in Man and other animals the right which is the left, and that the left which is the right, and that in some things right and left, which is not properly either.

For first the right and left, are not defined by Phylosophers according to common acception, that is, respectively from one Man unto another, or any constant site in each; as though that should be the right in one, which upon confront or facing, stands athwart or diagonally unto the other; but were distinguished according to the activity and predominant locomotion upon either side. Thus *Aristotle* in his excellent Tract *de incessu animalium*, ascribeth six positions unto Animals, answering the three dimensions; which he determineth not by site or position unto the Heavens, but by their faculties and functions; and these are *Imum summum*, *Ante Retro*, *Dextra et Sinistra*: that is, the superiour part, where the aliment is received, that the lower extream, where it is last expelled; so he termeth a Man a plant inverted; for he supposeth the root of a Tree the head or upper part thereof, whereby it receiveth its aliment, although therewith it respects the Center of the Earth, but with the other the Zenith; and this position is answerable unto longitude. Those parts are anteriour and measure profundity, where the senses, especially the Eyes are placed, and those posterior which are opposite hereunto. The dextrous and sinistrous parts of the body

make up the latitude; and are not certain and inalterable like the other; for that, saith he, is the right side, from whence the motion of the body beginneth, that is, the active or moving side; but that the sinister which is the weaker or more quiescent part. Of the same determination were the *Platonicks* and *Pythagoreans* before him; who conceiving the heavens an animated body, named the *East*, the right or dextrous part, from whence began their motion: and thus the *Greeks*, from whence the *Latins* have borrowed their appellation, have named this hand δέξια, denominating it not from the site, but office, from δέχομαι *capio*, that is, the hand which receiveth, or is usually implied in that action. CHAP. V

Now upon these grounds we are most commonly mistaken, defining that by situation which they determined by motion; and giving the term of right hand to that which doth not properly admit it. For first, Many in their Infancy are sinistrously disposed, and divers continue all their life Ἀριστεροί, that is, left handed, and have but weak and imperfect use of the right; now unto these, that hand is properly the right, and not the other esteemed so by situation. Thus may *Aristotle* be made out, when he affirmeth the right claw of *Crabs* and *Lobsters* is biggest, if we take the right for the most vigorous side, and not regard the relative situation: for the one is generally bigger then the other, yet not alwayes upon the same side. So may it be verified what is delivered by *Scaliger* in his Comment, that Palsies do oftnest happen upon the left side, if understood in this sense; the most vigorous part protecting it self, and protruding the matter upon the weaker and less resistive side. And thus the Law of Common-Weals, that cut off the right hand of

CHAP. V

Malefactors, if Philosophically executed, is impartial; otherwise the amputation not equally punisheth all.

Apt for contention.

Some are Ἀμφιδέξιοι, that is, ambidextrous or right handed on both sides; which happeneth only unto strong and Athletical bodies, whose heat and spirits are able to afford an ability unto both. And therefore *Hippocrates* saith, that Women are not ambidextrous, that is, not so often as Men; for some are found, which indifferently make use of both. And so may *Aristotle* say, that only Men are ambidexterous; of this constitution was *Asteropæus* in *Homer*, and *Parthenopeus* the *Theban* Captain in *Statius*: and of the same, do some conceive our Father *Adam* to have been, as being perfectly framed, and in a constitution admitting least defect. Now in these Men the right hand is on both sides, and that is not the left which is opposite unto the right, according to common acception.

Strongly or fit for corporal exercise.

Again, Some are Ἀμφαριστεροὶ, as *Galen* hath expressed it; that is, ambilevous or left-handed on both sides; such as with agility and vigour have not the use of either: who are not gymnastically composed: nor actively use those parts. Now in these there is no right hand: of this constitution are many Women, and some Men, who though they accustom themselves unto either hand, do dexterously make use of neither. And therefore although the Political advice of *Aristotle* be very good, that Men should accustom themselves to the command of either hand: yet cannot the execution or performance thereof be general: for though there be many found that can use both, yet will there divers remain that can strenuously make use of neither.

Lastly, These lateralities in Man are not only fallible, if relatively determined unto each other, but made in reference unto the heavens and quarters of the

Globe: for those parts are not capable of these conditions in themselves, nor with any certainty respectively derived from us, nor from them to us again. And first in regard of their proper nature, the heavens admit not these sinister and dexter respects; there being in them no diversity or difference, but a simplicity of parts, and equiformity in motion continually succeeding each other; so that from what point soever we compute, the account will be common unto the whole circularity. And therefore though it be plausible, it is not of consequence hereto what is delivered by *Solinus*. That Man was therefore a Microcosm or little World, because the dimensions of his positions were answerable unto the greater. For as in the Heavens the distance of the North and Southern pole, which are esteemed the superiour and inferiour points, is equal unto the space between the East and West, accounted the dextrous and sinistrous parts thereof; so is it also in Man, for the extent of his fathome or distance betwixt the extremity of the fingers of either hand upon expansion, is equal unto the space between the sole of the foot and the crown. But this doth but petionarily infer a dextrality in the Heavens, and we may as reasonably conclude a right and left laterality in the Ark or naval edifice of *Noah*. For the length thereof was thirty cubits, the breadth fifty, and the height or profundity thirty; which well agreeth unto the proportion of Man, whose length, that is, a perpendicular from the vertex unto the sole of the foot is sextuple unto his breadth, or a right line drawn from the ribs of one side to another; and decuble unto his profundity; that is, a direct line between the breast bone and the spine. CHAP. V

Again, They receive not these conditions with any

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assurance or stability from our selves. For the relative foundations and points of denomination, are not fixed and certain, but variously designed according to imagination. The Philosopher accounts that East from whence the Heavens begin their motion. The Astronomer regarding the South and Meridian Sun, calls that the dextrous part of Heaven which respecteth his right hand; and that is the West. Poets respecting the West, assign the name of right unto the North, which regardeth their right hand; and so must that of *Ovid* be explained *utque duæ dextrâ Zonæ totidemquæ sinistrâ*. But Augurs or Southsayers turning their face to the East, did make the right in the South; which was also observed by the *Hebrews* and *Chaldeans*. Now if we name the quarters of Heaven respectively unto our sides, it will be no certain or invariable denomination. For if we call that the right side of Heaven which is seated Easterly unto us, when we regard the Meridian Sun; the inhabitants beyond the Æquator and Southern Tropick when they face us, regarding the Meridian, will contrarily define it; for unto them, the opposite part of Heaven will respect the left, and the Sun arise to their right.

Declarable from the original expression, Psalm 89. 13.

And thus have we at large declared that although the right be most commonly used, yet hath it no regular or certain root in nature. Since it is not confirmable from other Animals: Since in Children it seems either indifferent or more favourable in the other; but more reasonable for uniformity in action, that Men accustom unto one: Since the grounds and reasons urged for it, do not sufficiently support it: Since if there be a right and stronger side in nature, yet may we mistake in its denomination; calling that the right which is the left, and the left which is the

right. Since some have one right, some both, some neither. And lastly, Since these affections in Man are not only fallible in relation unto one another, but made also in reference unto the Heavens, they being not capable of these conditions in themselves, nor with any certainty from us, nor we from them again. CHAP. V

And therefore what admission we ow unto many conceptions concerning right and left, requireth circumspection. That is, how far we ought to rely upon the remedy in *Kiranides*, that is, the left eye of an *Hedghog* fried in oyl to procure sleep, and the right foot of a *Frog* in a *Dears* skin for the *Gout*; or that to dream of the loss of right or left tooth, presageth the death of male or female kindred, according to the doctrine of *Artemidorus*. What verity there is in that numeral conceit in the lateral division of Man by even and odd, ascribing the odd unto the right side, and even unto the left; and so by parity or imparity of letters in Mens names to determine misfortunes on either side of their bodies; by which account in Greek numeration, *Hephæstus* or *Vulcan* was lame in the right foot, and *Anibal* lost his right eye. And lastly, what substance there is in that Auspicial principle, and fundamental doctrine of Ariolation, that the left hand is ominous, and that good things do pass sinistrously upon us, because the left hand of man respected the right hand of the Gods, which handed their favours unto us.

CHAP. VI

CHAPTER VI

Of Swimming and Floating.

THAT Men swim naturally, if not disturbed by fear; that Men being drowned and sunk, do float the ninth day when their gall breaketh; that Women drowned, swim prone, but Men supine, or upon their backs; are popular affirmations, whereto we cannot assent. And first, that Man should swim naturally, because we observe it is no lesson unto other Animals, we are not forward to conclude; for other Animals swim in the same manner as they go, and need no other way of motion for natation in the water, then for progression upon the land. And this is true whether they move *per latera*, that is, two legs of one side together, which is Tollutation or ambling; or *per diametrum*, lifting one foot before, and the cross foot behind, which is succussation or trotting; or whether *per frontem* or *quadratum*, as *Scaliger* terms it, upon a square base, the legs of both sides moving together, as *Frogs* and salient Animals, which is properly called leaping. For by these motions they are able to support and impel themselves in the water, without alteration in the stroak of their legs, or position of their bodies.

But with Man it is performed otherwise; for in regard of site he alters his natural posture and swimmeth prone; whereas he walketh erect. Again, in progression the arms move parallel to the legs, and the arms and legs unto each other; but in natation they intersect and make all sorts of angles. And lastly, in progressive motion, the arms and legs do move successively, but in natation both together; all

which aptly to perform, and so as to support and advance the body, is a point of Art, and such as some in their young and docile years could never attain. But although swimming be acquired by art, yet is there somewhat more of nature in it then we observe in other habits, nor will it strictly fall under that definition; for once obtained, it is not to be removed; nor is there any who from disuse did ever yet forget it. CHAP. VI

Secondly, That persons drowned arise and float the ninth day when their gall breaketh, is a questionable determination both in the time and cause. For the time of floating, it is uncertain according to the time of putrefaction, which shall retard or accelerate according to the subject and season of the year; for as we observed, *Cats* and *Mice* will arise unequally, and at different times, though drowned at the same. Such as are fat do commonly float soonest, for their bodies soonest ferment, and that substance approacheth nearest unto air: and this is one of *Aristotles* reasons why dead *Eels* will not float, because saith he, they have but slender bellies, and little fat.

Why drowned bodies float after a time.

As for the cause, it is not so reasonably imputed unto the breaking of the gall as the putrefaction or corruptive firmentation of the body, whereby the unnatural heat prevailing, the putrifying parts do suffer a turgescence and inflation, and becoming aery and spumous affect to approach the air, and ascend unto the surface of the water. And this is also evidenced in Eggs, whereof the sound ones sink, and such as are addled swim, as do also those which are termed hypenemia or wind-eggs; and this is also a way to separate seeds, whereof such as are corrupted and steril, swim; and this agreeth not only unto the seed of plants lockt

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up and capsulated in their husks, but also unto the sperm and seminal humour of Man; for such a passage hath *Aristotle* upon the Inquisition and test of its fertility.

That the breaking of the gall is not the cause hereof, experience hath informed us. For opening the *abdomen*, and taking out the gall in *Cats* and *Mice*, they did notwithstanding arise. And because we had read in *Rhodiginus* of a Tyrant, who to prevent the emergency of murdered bodies, did use to cut off their lungs, and found Mens minds possessed with this reason; we committed some unto the water without lungs, which notwithstanding floated with the others. And to compleat the experiment, although we took out the guts and bladder, and also perforated the Cranium, yet would they arise, though in a longer time. From these observations in other Animals, it may not be unreasonable to conclude the same in Man, who is too noble a subject on whom to make them expressly, and the casual opportunity to rare almost to make any. Now if any should ground this effect from gall or choler, because it is the highest humour and will be above the rest; or being the fiery humour will readiest surmount the water, we must confess in the common putrescence it may promote elevation, which the breaking of the bladder of gall, so small a part in Man, cannot considerably advantage.

Lastly, That Women drowned float prone, that is, with their bellies downward, but Men supine or upward, is an assertion wherein the *hoti* or point it self is dubious; and were it true, the reason alledged for it, is of no validity. The reason yet currant was first expressed by *Pliny*, *veluti pudori defunctorum parcente naturâ*, nature modestly ordaining this position to con-

ceal the shame of the dead; which hath been taken up by *Solinus*, *Rhodiginus*, and many more. This indeed (as *Scaliger* termeth it) is *ratio civilis non philosophica*, strong enough for morality of Rhetoricks, not for Philosophy or Physicks. For first, in nature the concealment of secret parts is the same in both sexes, and the shame of their reveal equal: so *Adam* upon the tast of the fruit was ashamed of his nakedness as well as *Eve*. And so likewise in *America* and Countries unacquainted with habits, where modesty conceals these parts in one sex, it doth it also in the other; and therefore had this been the intention of nature, not only Women but Men also had swimmed downwards; the posture in reason being common unto both, where the intent is also common. CHAP. VI

Again, While herein we commend the modesty, we condemn the wisdom of nature: for that prone position we make her contrive unto the Woman, were best agreeable unto the Man, in whom the secret parts are very anteriour and more discoverable in a supine and upward posture. And therefore *Scaliger* declining this reason, hath recurred unto another from the difference of parts in both sexes; *Quod ventre vasto sunt mulieres plenoque intestinis, itaque minus impletur et subsidet, inanior maribus quibus nates præponderant*: If so, then Men with great bellies will float downward, and only *Callipygæ*, and Women largely composed behind, upward. But *Anatomists* observe, that to make the larger cavity for the Infant, the hanch bones in Women, and consequently the parts appendant are more protuberant then they are in Men. They who ascribe the cause unto the breasts of Women, take not away the doubt; for they resolve not why children float downward, who are included in that sex, though

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not in the reason alleadged. But hereof we cease to discourse, lest we undertake to afford a reason of the [1] golden tooth, that is, to invent or assign a cause when we remain unsatisfied or unassured of the effect.

[1] *Of the cause whereof much dispute was made, and at last proved an imposture.*

That a *Mare* will sooner drown then a *Horse*, though commonly opinion'd, is not I fear experienced: nor is the same observed, in the drowning of *Whelps* and *Kitlins*. But that a Man cannot shut or open his eyes under water, easie experiment may convict. Whether Cripples and mutilated Persons, who have lost the greatest part of their thighs, will not sink but float, their lungs being abler to waft up their bodies, which are in others overpoised by the hinder legs; we have not made experiment. Thus much we observe, that Animals drown downwards, and the same is observable in *Frogs*, when the hinder legs are cut off. But in the air most seem to perish headlong from high places; however *Vulcan* thrown from Heaven, be made to fall on his feet.

CHAPTER VII

Concerning Weight.

THAT Men weigh heavier dead then alive, if experiment hath not failed us, we cannot reasonably grant. For though the trial hereof cannot so well be made on the body of Man, nor will the difference be sensible in the abate of scruples and dragms, yet can we not confirm the same in lesser Animals, from whence the inference is good; and the affirmative of *Pliny* saith, that it is true in all. For exactly weighing and strangling a *Chicken* in the Scales; upon an immediate ponderation, we could

discover no sensible difference in weight; but suffering it to lie eight or ten hours, untill it grew perfectly cold, it weighed most sensibly lighter; the like we attempted, and verified in *Mice*, and performed their trials in Scales, that would turn upon the eighth or tenth part of a grain. CHAP. VII

Now whereas some alledge that spirits are lighter substances, and naturally ascending, do elevate and waft the body upward, whereof dead bodies being destitute, contract a greater gravity; although we concede that spirits are light, comparatively unto the body, yet that they are absolutely so, or have no weight at all, we cannot readily allow. For since Philosophy affirmeth, that spirits are middle substances between the soul and body, they must admit of some corporiety, which supposeth weight or gravity. Beside, in carcasses warm, and bodies newly disanimated, while transpiration remaineth, there do exhale and breath out vaporous and fluid parts, which carry away some power of gravitation. Which though we allow, we do not make answerable unto living expiration; and therefore the *Chicken* or *Mice* were not so light being dead, as they would have been after ten hours kept alive; for in that space a man abateth many ounces. Nor if it had slept, for in that space of sleep, a Man will sometimes abate fourty ounces; nor if it had been in the middle of summer, for then a Man weigheth some pounds less, then in the height of winter; according to experience, and the statick Aphorisms of *Sanctorius*.

Again, Whereas Men affirm they perceive an addition of ponderosity in dead bodies, comparing them usually unto blocks and stones, whensoever they lift or carry them; this accessional preponderancy is rather

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in appearance then reality. For being destitute of any motion, they confer no relief unto the Agents, or Elevators; which makes us meet with the same complaints of gravity in animated and living bodies, where the Nerves subside, and the faculty locomotive seems abolished; as may be observed in the lifting or supporting of persons inebriated, Apoplectical, or in Lypothymies and swoundings.

Many are also of opinion, and some learned Men maintain, that Men are lighter after meals then before, and that by a supply and addition of spirits obscuring the gross ponderosity of the aliment ingested; but the contrary hereof we have found in the trial of sundry persons in different sex and ages. And we conceive Men may mistake if they distinguish not the sense of levity unto themselves, and in regard of the scale or decision of trutination. For after a draught of wine, a Man may seem lighter in himself from sudden refection, although he be heavier in the balance, from a corporal and ponderous addition; but a Man in the morning is lighter in the scale, because in sleep some pounds have perspired; and is also lighter unto himself, because he is refected.

And to speak strictly, a Man that holds his breath is weightier while his lungs are full, then upon expiration. For a bladder blown is weightier then one empty, and if it contain a quart, expressed and emptied it will abate about a quarter of a grain. And therefore we somewhat mistrust the experiment of a pumice stone taken up by *Montanus*, in his Comment upon *Avicenna*, where declaring how the rarity of parts, and numerosity of pores, occasioneth a lightness in bodies, he affirms that a pumice-stone powdered, is lighter then one entire; which is an experiment beyond our

satisfaction; for beside that abatement can hardly be avoided in the Trituration; if a bladder of good capacity will scarce include a grain of air, a pumice of three or four dragms, cannot be presumed to contain the hundred part thereof; which will not be sensible upon the exactest beams we use. Nor is it to be taken strictly which is delivered by the learned Lord *Verulam*, and referred unto further experiment; That a dissolution of Iron in *aqua fortis*, will bear as good weight as their bodies did before, notwithstanding a great deal of waste by a thick vapour that issueth during the working; for we cannot find it to hold neither in Iron nor Copper, which is dissolved with less ebullition; and hereof we made trial in Scales of good exactness: wherein if there be a defect, or such as will not turn upon quarter grains, there may be frequent mistakes in experiments of this nature. That also may be considered which is delivered by *Hamerus Poppius*, that *Antimony* calcin'd or reduced to ashes by a burning glass, although it emit a gross and ponderous exhalation, doth rather exceed then abate its former gravity. Nevertheless, strange it is; how very little and almost insensible abatement there will be sometimes in such operations, or rather some encrease, as in the refining of metals, in the test of bone ashes, according to experience: and in a burnt brick, as *Monsieur de Clave* affirmeth. Mistake may be made in this way of trial, when the *Antimony* is not weighed immediately upon the calcination; but permitted the air, it imbibeth the humidity thereof, and so repaireth its gravity.

CHAP VII

Basilica Antimonii.

Des Pierres.

CHAP. VIII

CHAPTER VIII

Of the passage of Meat and Drink.

THAT there are different passages for Meat and Drink, the Meat or dry aliment descending by the one, the Drink or moistening vehicle by the other, is a popular Tenent in our daies, but was the assertion of learned men of old. For the same was affirmed by *Plato*, maintained by *Eustathius* in *Macrobius*, and is deducible from *Eratosthenes*, *Eupolis* and *Euripides*. Now herein Men contradict experience, not well understanding *Anatomy*, and the use of parts. For at the Throat there are two cavities or conducting parts; the one the Oesophagus or Gullet, seated next the spine, a part official unto nutrition, and whereby the aliment both wet and dry is conveied unto the stomack; the other (by which tis conceived the Drink doth pass) is the weazon, rough artery, or wind-pipe, a part inservient to voice and respiration; for thereby the air descendeth into the lungs, and is communicated unto the heart. And therefore all Animals that breath or have lungs, have also the weazon; but many have the gullet or feeding channel, which have no lungs or wind-pipe; as fishes which have gils, whereby the heart is refrigerated; for such thereof as have lungs and respiration, are not without the weazon, as Whales and cetaceous Animals.

Again, Beside these parts destin'd to divers offices, there is a peculiar provision for the wind-pipe, that is, a cartilagineous flap upon the opening of the Larinx or Throttle, which hath an open cavity for the admission of the air; but lest thereby either meat or drink should descend, Providence hath placed the *Epiglottis*,

Ligula, or flap like an Ivy leaf, which alwaies closeth when we swallow, or when the meat and drink passeth over it into the gullet. Which part although all have not that breath, as all cetaceous and oviparous Animals, yet is the weazon secured some other way; and therefore in Whales that breath, least the water should get into the lungs, an ejection thereof is contrived by a Fistula or spout at the head. And therefore also though birds have no Epiglottis, yet can they so contract the rim or chink of their Larinx, as to prevent the admission of wet or dry ingested; either whereof getting in, occasioneth a cough, until it be ejected. And this is the reason why a Man cannot drink and breath at the same time; why, if we laugh while we drink, the drink flies out at the nostrils; why, when the water enters the weazon, Men are suddenly drowned; and thus must it be understood, when we read of one that died by the seed of a Grape, and another by an hair in milk. CHAP. VIII

Why a man cannot drink and breath at once.

Anacreon *the Poet, if the story be taken literally.*

Now if any shall still affirm, that some truth there is in the assertion, upon the experiment of *Hippocrates*, who killing an Hog after a red potion, found the tincture thereof in the Larinx; if any will urge the same from medical practice, because in affections both of Lungs and weazon, Physitians make use of syrupes, and lambitive medicines; we are not averse to acknowledge, that some may distil and insinuate into the wind-pipe, and medicines may creep down, as well as the rheum before them; yet to conclude from hence, that air and water have both one common passage, were to state the question upon the weaker side of the distinction, and from a partial or guttulous irrigation, to conclude a total descension.

CHAP. IX

CHAPTER IX

Of Sneezing.

CONCERNING Sternutation or Sneezing, and the custom of saluting or blessing upon that motion, it is pretended, and generally believed to derive its original from a disease, wherein Sternutation proved mortal, and such as Sneezed, died. And this may seem to be proved from *Carolus Sigonius*, who in his History of *Italy*, makes mention of a Pestilence in the time of *Gregory* the Great, that proved pernitious and deadly to those that Sneezed. Which notwithstanding will not sufficiently determine the grounds hereof: that custom having an elder *Æra*, then this Chronology affordeth.

For although the age of *Gregory* extend above a thousand, yet is this custom mentioned by *Apuleius*, in the Fable of the Fullers wife, who lived three hundred years before; by *Pliny* in that Problem of his, *Cur Sternutantes salutantur*; and there are also reports that *Tiberius* the Emperour, otherwise a very sower Man, would perform this rite most punctually unto others, and expect the same from others, unto himself. *Petronius Arbiter*, who lived before them both, and was Proconsul of *Bythinia* in the raign of *Nero*, hath mentioned it in these words, *Gyton collectione spiritus plenus, ter continuo ita sternutavit ut grabatum concuteret, ad quem motum Eumolpus conversus, Salvere Gytona jubet.* *Cœlius Rhodiginus* hath an example hereof among the *Greeks*, far antienter than these, that is, in the time of *Cyrus* the younger; when consulting about their retreat, it chanced that one among them Sneezed; at the noise whereof, the rest of the Souldiers

called upon *Jupiter Soter*. There is also in the Greek Anthology, a remarkable mention hereof in an Epigram, upon one *Proclus*; the Latin whereof we shall deliver, as we find it often translated.

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A Collection of Greek Epigrams, Titulo εἰς δυσειδεῖς.

Non potis est Proclus digitis emungere nasum,
Namq; est pro nasi mole pusilla manus:
Non vocat ille Jovem sternutans, quippe nec audit
Sternutamentum, tam procul aure sonat.
Proclus with his hand his nose can never wipe,
His hand too little is his nose to gripe;
He Sneezing calls not *Jove*, for why? he hears
Himself not Sneeze, the sound's so far from's ears.

Nor was this only an ancient custom among the *Greeks* and *Romans*, and is still in force with us, but is received at this day in remotest parts of *Africa*. For so we read in *Codignus*; that upon a Sneeze of the Emperour of *Monomotapa*, there passed acclamations successively through the City. And as remarkable an example there is of the same custom, in the remotest parts of the East, recorded in the travels of *Pinto*.

De rebus Abassinorum

But the history will run much higher, if we should take in the *Rabinical* account hereof; that Sneezing was a mortal sign even from the first Man; until it was taken off by the special supplication of *Jacob*. From whence, as a thankful acknowledgment, this salutation first began; and was after continued by the expression of *Tobim Chaiim*, or *vita bona*, by standers by, upon all occasion of Sneezing.

Buxt. Lex. Chald.

Now the ground of this ancient custom was probably the opinion the ancients held of sternutation, which they generally conceived, to be a good sign or a bad, and so upon this motion accordingly used, a Salve or Ζεῦ σῶσον, as a gratulation for the one, and a deprecation for the other. Now of the waies whereby they

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enquired and determined its signality; the first was natural, arising from Physical causes, and consequences oftentimes naturally succeeding this motion; and so it might be justly esteemed a good sign. For Sneezing being properly a motion of the brain, suddenly expelling through the nostrils what is offensive unto it, it cannot but afford some evidence of its vigour; and therefore saith *Aristotle*, they that hear it, προσκυνοῦσιν ὡς ἱερον, honour it as somewhat sacred, and a sign of Sanity in the diviner part; and this he illustrates from the practice of Physitians, who in persons near death, do use Sternutatories, or such medicines as provoke unto Sneezing; when if the faculty awaketh, and Sternutation ensueth, they conceive hopes of life, and with gratulation receive the signs of safety. And so is it also of good signality, according to that of *Hippocrates*, that Sneezing cureth the hicket, and is profitable unto Women in hard labour; and so is it good in Lethargies, Apoplexies, Catalepsies, and Coma's. And in this natural way it is sometime likewise of bad effects or signs, and may give hints of deprecation; as in diseases of the chest; for therein *Hippocrates* condemneth it as too much exagitating: in the beginning of *Catarrhs* according unto *Avicenna*, as hindering concoction, in new and tender conceptions (as *Pliny* observeth) for then it endangers abortion.

Whence Sternutation or Sneezing proceeds.

Problem Sect. 33.

In what cases a sign of good. 2. *King* 4. 35.

In what of bad.

The second way was superstitious and Augurial, as *Cœlius Rhodiginus* hath illustrated in testimonies, as ancient as *Theocritus* and *Homer*: as appears from the *Athenian* Master, who would have retired, because a Boat-man Sneezed; and the testimony of *Austin*, that the Ancients were wont to go to bed again if they Sneezed while they put on their shoe. And in this way it was also of good and bad signification; so

Aristotle hath a Problem, why Sneezing from noon unto midnight was good, but from night to noon unlucky? So *Eustathius* upon *Homer* observes, that Sneezing to the left hand was unlucky, but prosperous unto the right; so, as *Plutarch* relateth, when *Themistocles* sacrificed in his galley before the battle of *Xerxes*, and one of the assistants upon the right hand sneezed; *Euphrantides* the Southsayer, presaged the victory of the *Greeks*, and the overthrow of the *Persians*. CHAP. IX.

Thus we may perceive the custom is more ancient then commonly conceived; and these opinions hereof in all ages, not any one disease to have been the occasion of this salute and deprecation. Arising at first from this vehement and affrighting motion of the brain, inevitably observable unto the standers by; from whence some finding dependent effects to ensue; others ascribing hereto as a cause what perhaps but casually or inconnexedly succeeded; they might proceed unto forms of speeches, felicitating the good, or deprecating the evil to follow.

CHAPTER X

Of the Jews.

THAT *Jews* stink naturally, that is, that in their race and nation there is an evil savour, is a received opinion we know not how to admit; although concede many questionable points, and dispute not the verity of sundry opinions which are of affinity hereto. We will acknowledg that certain odours attend on animals, no less then certain colours; that pleasant smels are not confined unto

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vegetables, but found in divers animals, and some more richly then in plants. And though the Problem of *Aristotle* enquire why no animal smels sweet beside the Parde? yet later discoveries add divers sorts of *Monkeys*, the *Civet Cat* and *Gazela*, from which our Musk proceedeth. We confess that beside the smell of the species, there may be individual odours, and every Man may have a proper and peculiar savour; which although not perceptible unto Man, who hath this sense, but weak, yet sensible unto *Dogs*, who hereby can single out their masters in the dark. We will not deny that particular Men have sent forth a pleasant savour, as *Theophrastus* and *Plutarch* report of *Alexander* the great, and *Tzetzes* and *Cardan* do testifie of themselves. That some may also emit an unsavory odour, we have no reason to deny; for this may happen from the quality of what they have taken; the Fætor whereof may discover it self by sweat and urine, as being unmasterable by the natural heat of Man, not to be dulcified by concoction beyond an unsavory condition: the like may come to pass from putrid humours, as is often discoverable in putrid and malignant feavers. And sometime also in gross and humid bodies even in the latitude of sanity; the natural heat of the parts being insufficient for a perfect and through digestion, and the errors of one concoction not rectifiable by another. But that an unsavory odour is gentilitious or national unto the *Jews*, if rightly understood, we cannot well concede; nor will the information of reason or fence induce it.

For first, Upon consult of reason, there will be found no easie assurance to fasten a material or temperamental propriety upon any nation; there being scarce any condition (but what depends upon clime) which is

not exhausted or obscured from the commixture of introvenient nations either by commerce or conquest; much more will it be difficult to make out this affection in the *Jews*; whose race however pretended to be pure, must needs have suffered inseparable commixtures with nations of all sorts; not only in regard of their proselytes, but their universal dispersion; some being posted from several parts of the earth, others quite lost, and swallowed up in those nations where they planted. For the tribes of *Reuben*, *Gad*, part of *Manasses* and *Naphthali*, which were taken by *Assur*, and the rest at the Sacking of *Samaria*, which were led away by *Salmanasser* into *Assyria*, and after a year and half arrived at *Arsereth*, as is delivered in *Esdras*; these I say never returned, and are by the *Jews* as vainly expected as their *Messias*. Of those of the tribe of *Judah* and *Benjamin*, which were led captive into *Babylon* by *Nebuchadnezzar*, many returned under *Zorobabel*; the rest remained, and from thence long after upon invasion of the *Saracens*, fled as far as *India*; where yet they are said to remain, but with little difference from the *Gentiles*. CHAP. X

The Tribes that returned to *Judea*, were afterward widely dispersed; for beside sixteen thousand which *Titus* sent to *Rome* unto the triumph of his father *Vespasian*, he sold no less then an hundred thousand for slaves. Not many years after, *Adrian* the Emperour, who ruined the whole Countrey, transplanted many thousands into *Spain*, from whence they dispersed into divers Countreys, as into *France* and *England*, but were banished after from both. From *Spain* they dispersed into *Africa*, *Italy*, *Constantinople*, and the Dominions of the *Turk*, where they remain as yet in very great numbers. And if (according to good

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relations) where they may freely speak it, they forbear not to boast that there are at present many thousand *Jews* in *Spane*, *France* and *England*, and some dispensed withall even to the degree of Priesthood; it is a matter very considerable, and could they be smelled out, would much advantage, not only the Church of Christ, but also the coffers of Princes.

Now having thus lived in several Countries, and alwaies in subjection, they must needs have suffered many commixtures; and we are sure they are not exempted from the common contagion of Venery contracted first from Christians. Nor as fornications unfrequent between them both; there commonly passing opinions of invitement, that their Women desire copulation with them rather then their own Nation, and affect Christian carnality above circumcised venery. It being therefore acknowledged, that some are lost, evident that others are mixed, and not assured that any are distinct, it will be hard to establish this quality upon the *Jews*, unless we also transfer the same unto those whose generations are mixed, whose genealogies are *Jewish*, and naturally derived from them.

Again, if we concede a National unsavouriness in any people, yet shall we find the *Jews* less subject hereto then any, and that in those regards which most powerfully concur to such effects, that is, their diet and generation. As for their diet whether in obedience unto the precepts of reason, or the injunctions of parsimony, therein they are very temperate; seldom offending in ebriety or excess of drink, nor erring in gulosity or superfluity of meats; whereby they prevent indigestion and crudities, and consequently putrescence of humors. They have in abomination all flesh maimed, or the inwards any way vitiated; and therefore eat no

The Jews generally very temperate.

meat but of their own killing. They observe not only fasts at certain times, but are restrained unto very few dishes at all times; so few, that whereas St. *Peters* sheet will hardly cover our Tables, their Law doth scarce permit them to set forth a Lordly feast; nor any way to answer the luxury of our times, or those of our fore-fathers. For of flesh their Law restrains them many sorts, and such as compleat our feasts: That Animal, *Propter convivia natum*, they touch not, nor any of its preparations, or parts so much in respect at *Roman* Tables, nor admit they unto their board, *Hares*, *Conies*, *Herons*, *Plovers* or *Swans*. Of *Fishes* they only taste of such as have both fins and scales; which are comparatively but few in number, such only, saith *Aristotle*, whose Egg or spawn is arenaceous; whereby are excluded all cetaceous and cartilagious *Fishes*; many pectinal, whose ribs are rectilineal; many costal, which have their ribs embowed; all spinal, or such as have no ribs, but only a back bone, or somewhat analogous thereto, as *Eels*, *Congers*, *Lampries*; all that are testaceous, as *Oysters*, *Cocles*, *Wilks*, *Scollops*, *Muscles*; and likewise all crustaceous, as *Crabs*, *Shrimps* and *Lobsters*. So that observing a spare and simple diet, whereby they prevent the generation of crudities; and fasting often whereby they might also digest them; they must be less inclinable unto this infirmity then any other Nation, whose proceedings are not so reasonable to avoid it.

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Quanta est gula, quæ sibi totos ponit Apros! Animal propter convivia natum.

As for their generations and conceptions (which are the purer from good diet,) they become more pure and perfect by the strict observation of their Law; upon the injunctions whereof, they severely observe the times of Purification, and avoid all copulation, either in the uncleanness of themselves, or impurity of their Women.

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A Rule, I fear, not so well observed by Christians; whereby not only conceptions are prevented, but if they proceed, so vitiated and defiled, that durable inquinations remain upon the birth. Which, when the conception meets with these impurities, must needs be very potent; since in the purest and most fair conceptions, learned Men derive the cause of *Pox* and *Meazels*, from principles of that nature; that is, the menstrous impurities in the Mothers blood, and virulent tinctures contracted by the Infant, in the nutriment of the womb.

The original or material causes of the Pox and Measels.

Lastly, Experience will convict it; for this offensive odor is no way discoverable in their Synagogues where many are, and by reason of their number could not be concealed: nor is the same discernable in commerce or conversation with such as are cleanly in Apparel, and decent in their Houses. Surely the Viziars and *Turkish* Basha's are not of this opinion; who as Sir *Henry Blunt* informeth, do generally keep a *Jew* of their private Counsel. And were this true, the *Jews* themselves do not strictly make out the intention of their Law, for in vain do they scruple to approach the dead, who livingly are cadaverous, or fear any outward pollution, whose temper pollutes themselves. And lastly, were this true, yet our opinion is not impartial; for unto converted *Jews* who are of the same seed, no Man imputeth this unsavoury odor; as though Aromatized by their conversion, they lost their scent with their Religion, and smelt no longer then they savoured of the *Jew*.

Now the ground that begat or propagated this assertion, might be the distasteful aversness of the Christian from the *Jew*, upon the villany of that fact, which made them abominable and stink in the nostrils

of all Men. Which real practise, and metaphorical expression, did after proceed into a literal construction; but was a fraudulent illation; for such an evil savour their father *Jacob* acknowledged in himself, when he said, his sons had made him stink in the land, that is, to be abominable unto the inhabitants thereof. Now how dangerous it is in sensible things to use metaphorical expressions unto the people, and what absurd conceits they will swallow in their literals; an impatient example we have in our profession; who having called an eaten *ulcer* by the name of a *Wolf*, common apprehension conceives a reality therein; and against our selves, ocular affirmations are pretended to confirm it. CHAP. X Gen. 34.

The nastiness of that Nation, and sluttish course of life hath much promoted the opinion, occasioned by their servile condition at first, and inferiour ways of parsimony ever since; as is delivered by Mr. *Sandys*. They are generally fat, saith he, and rank of the savours which attend upon sluttish corpulency. The *Epithetes* assigned them by ancient times, have also advanced the same; for *Ammianus Marcellinus* describeth them in such language; and *Martial* more ancient, in such a relative expression sets forth unsavoury *Bassa*.

Quod jejunia Sabbatoriorum.
Mallem, quam quod oles, olere Bassa.

From whence notwithstanding we cannot infer an inward imperfection in the temper of that Nation; it being but an effect in the breath from outward observation, in their strict and tedious fasting; and was a common effect in the breaths of other Nations, became a Proverb among the *Greeks*, and the reason thereof begot a Problem in *Aristotle*. Νηστείας ὄζειν. Jejunia olere.

Lastly, If all were true, and were this savour con-

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ceded, yet are the reasons alleadged for it no way satisfactory. *Hucherius*, and after him *Alvarius Crucius*, imputes this effect unto their abstinence from salt or salt meats; which how to make good in the present diet of the *Jews*, we know not; nor shall we conceive it was observed of old, if we consider they seasoned every Sacrifice, and all oblations whatsoever; whereof we cannot deny a great part was eaten by the Priests. And if the offering were of flesh, it was salted no less than thrice, that is, once in the common chamber of salt, at the foot-step of the Altar, and upon the top thereof, as is at large delivered by *Maimonides*. Nor if they refrained all salt, is the illation very urgent; for many there are, not noted for ill odours, which eat no salt at all; as all carnivorous Animals, most Children, many whole Nations, and probably our Fathers after the Creation; there being indeed in every thing we eat, a natural and concealed salt, which is separated by digestions, as doth appear in our tears, sweat and urines, although we refrain all salt, or what doth seem to contain it.

De sterilitate Cruc. Med. Epist.

Another cause is urged by *Campegius*, and much received by Christians; that this ill savour is a curse derived upon them by Christ, and stands, as a badge or brand of a generation that crucified their *Salvator*. But this is a conceit without all warrant; and an easie way to take off dispute in what point of obscurity soever. A method of many Writers, which much depreciates the esteem and value of miracles; that is, therewith to salve not only real verities, but also non-existencies. Thus have elder times not only ascribed the immunity of *Ireland* from any venemous beast, unto the staff or rod of *Patrick*; but the long tails of *Kent*, unto the malediction of *Austin*.

Thus therefore, although we concede that many opinions are true which hold some conformity unto this, yet in assenting hereto, many difficulties must arise: it being a dangerous point to annex a constant property unto any Nation, and much more this unto the *Jew*; since this quality is not verifiable by observation; since the grounds are feeble that should establish it; and lastly, since if all were true, yet are the reasons alleadged for it, of no sufficiency to maintain it. CHAP. X

CHAPTER XI

Of Pigmies.

BY *Pigmies* we understand a dwarfish race of people, or lowest diminution of mankind, comprehended in one cubit, or as some will have it, in two foot or three spans; not taking them single, but nationally considering them, and as they make up an aggregated habitation. Whereof although affirmations be many, and testimonies more frequent then in any other point which wise men have cast into the list of fables, yet that there is, or ever was such a race or Nation, upon exact and confirmed testimonies, our strictest enquiry receives no satisfaction.

I say, exact testimonies, first, In regard of the Authors, from whom we derive the account, for though we meet herewith in *Herodotus*, *Philostratus*, *Mela*, *Pliny*, *Solinus*, and many more; yet were they derivative Relators, and the primitive Author was *Homer*; who, using often similies, as well to delight the ear, as to illustrate his matter, in the third of his Iliads, compareth the *Trojans* unto *Cranes*, when they descend

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against the *Pigmies*; which was more largely set out by *Oppian*, *Juvenal*, *Mantuan*, and many Poets since, and being only a pleasant figment in the fountain, became a solemn story in the stream, and current still among us.

Again, Many professed enquirers have rejected it; *Strabo* an exact and judicious Geographer, hath largely condemned it as a fabulous story, *Julius Scaliger* a diligent enquirer, accounts thereof, but as a Poetical fiction; *Ulysses Aldrovandus* a most exact Zoographer in an express discourse hereon, concludes the story fabulous, and a Poetical account of *Homer*; and the same was formerly conceived by *Eustathius*, his excellent Commentator. *Albertus Magnus* a man ofttimes too credulous, herein was more then dubious; for he affirmeth, if any such dwarfs were ever extant, they were surely some kind of *Apes*: which is a conceit allowed by *Cardan*, and not esteemed improbable by many others.

There are I confess two testimonies, which from their authority admit of consideration. The first of *Aristotle*, whose words are these, ἐστὶ δὲ ὁ τόπος, etc. That is, *Hic locus est quem incolunt Pygmæi, non enim id fabula est, sed pusillum genus ut aiunt.* Wherein indeed *Aristotle* plaies the *Aristotle*, that is, the wary and evading assertor; For though with *non est fabula*, he seems at first to confirm it, yet at the last he claps in *Sciunt aiunt*, and shakes the belief he put before upon it. And therefore I observe *Scaliger* hath not translated the first; perhaps supposing it surreptitious or unworthy so great an assertor. And truly for those books of animals, or work of eight hundred talents, as *Athenæus* terms it, although ever to be admired, as containing most excellent truths; yet are many things

Hist. animal. lib. 3.

therein delivered upon relation, and some repugnant unto the history of our senses; as we are able to make out in some, and *Scaliger* hath observed in many more, as he hath freely declared in his Comment upon that piece.

The second testimony is deduced from holy Scripture; thus rendered in the vulgar translation, *Sed et Pygmæi qui erant in turribus tuis, pharetras suas suspenderunt in muris tuis per gyrum*: from whence notwithstanding we cannot infer this assertion, for first the Translators accord not, and the Hebrew word *Gammadim* is very variously rendered. Though *Aquila*, *Vetablus* and *Lyra* will have it *Pygmæi*, yet in the Septuagint, it is no more then Watchmen; and so in the *Arabick* and high *Dutch*. In the *Chalde*, *Cappadocians*, in *Symmachus*, *Medes*, and in the *French*, those of *Gamad*. *Theodotian* of old, and *Tremellius* of late, have retained the Textuary word; and so have the *Italian*, Low *Dutch* and *English* Translators, that is, the Men of *Arvad* were upon thy walls round about, and the *Gammadims* were in thy Towers. Ezek. 27. 11.

Nor do men only dissent in the Translation of the word, but in the Exposition of the sense and meaning thereof; for some by *Gammadims* understand a people of *Syria*, so called from the City *Gamala*; some hereby understand the *Cappadocians*, many the *Medes*: and hereof *Forerius* hath a singular Exposition, conceiving the Watchmen of *Tyre* might well be called *Pigmies*, the Towers of that City being so high, that unto Men below, they appeared in a cubital stature. Others expounded it quite contrary to common acception, that is not Men of the least, but of the largest size; so doth *Cornelius* construe *Pygmæi*, or *viri cubitales*, that is, not Men of a cubit high, but of the

See Mr. Fullers *excellent description of* Palestine.

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largest stature, whose height like that of Giants, is rather to be taken by the cubit then the foot; in which phrase we read the measure of *Goliah*, whose height is said to be six cubits and a span. Of affinity hereto is also the Exposition of *Jerom*; not taking *Pigmies* for dwarfs, but stout and valiant Champions; not taking the sense of πυγμὴ, which signifies the cubit measure, but that which expresseth Pugils; that is, Men fit for combat and the exercise of the fist. Thus can there be no satisfying illation from this Text, the diversity or rather contrariety of Expositions and interpretations, distracting more then confirming the truth of the story.

Again, I say, exact testimonies; in reference unto circumstantial relations so diversly or contrarily delivered. Thus the Relation of *Aristotle* placeth them above *Egypt* towards the head of *Nyle* in *Africa*; *Philostratus* affirms they are about *Ganges* in *Asia*, and *Pliny* in a third place, that is, *Gerania* in *Scythia*: some write they fight with Cranes, but *Menecles* in *Athenæus* affirms they fight with *Partridges*, some say they ride on *Partridges*, and some on the backs of *Rams*.

[1] *The story of Pigmies rejected.*
[2] *By Pigmies intending Fairies and other spirits about the earth as by Nymphs and Salamanders, spirits of fire and water.* Lib. De Pigmæis, Nymphis, *etc.*

Lastly, I say, confirmed testimonies; for though *Paulus Jovius* delivers there are *Pigmies* beyond *Japan*; *Pigafeta*, about the *Molucca's*; and *Olaus Magnus* placeth them in *Greenland*; yet wanting frequent confirmation in a matter so confirmable, their affirmation carrieth but slow perswasion;[1] and wise men may think there is as much reality in the [2]*Pigmies* of *Paracelsus*; that is, his non-Adamical men, or middle natures betwixt men and spirits.

There being thus no sufficient confirmation of their verity, some doubt may arise concerning their possi-

bility, wherein, since it is not defined in what dimensions the soul may exercise her faculties, we shall not conclude impossibility; or that there might not be a race of *Pigmies*, as there is sometimes of Giants. So may we take in the opinion of *Austin*, and his Comment *Ludovicus*, but to believe they should be in the stature of a foot or span, requires the preaspection of such a one as *Philetas* the Poet in *Athenæus*: who was fain to fasten lead unto his feet lest the wind should blow him away. Or that other in the same Author, who was so little *ut ad obolum accederet*; a story so strange, that we might herein excuse the PRINTER, did not the account of *Ælian* accord unto it, as *Causabone* hath observed in his learned Animadversions. CHAP. XI

Lastly, If any such Nation there were, yet is it ridiculous what Men have delivered of them; that they fight with *Cranes* upon the backs of *Rams* or *Partridges*: or what is delivered by *Ctesias*, that they are *Negroes* in the middest of *India*; whereof the King of that Country entertaineth three thousand Archers for his guard. Which is a relation below the tale of *Oberon*; nor could they better defend him, then the Emblem saith, they offended *Hercules* whilest he slept; that is, to wound him no deeper, then to awake him

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CHAPTER XII

Of the great Climacterical year, that is, Sixty three.

CERTAINLY the Eyes of the understanding, and those of the sense are differently deceived in their greatest objects; the sense apprehending them in lesser magnitudes then their dimensions require; so it beholdeth the Sun, the Stars, and the Earth it self. But the understanding quite otherwise: for that ascribeth unto many things far larger horizons then their due circumscriptions require: and receiveth them with amplifications which their reality will not admit. Thus hath it fared with many Heroes and most worthy persons, who being sufficiently commendable from true and unquestionable merits, have received advancement from falshood and the fruitful stock of Fables. Thus hath it happened unto the Stars, and Luminaries of heaven: who being sufficiently admirable in themselves, have been set out by effects, no way dependent on their efficiencies, and advanced by amplifications to the questioning of their true endowments. Thus is it not improbable it hath also fared with number, which though wonderful in it self, and sufficiently magnifiable from its demonstrable affections, hath yet received adjections from the multiplying conceits of men, and stands laden with additions, which its equity will not admit.

And so perhaps hath it happened unto the number, 7 and 9, which multiplied into themselves do make up Sixty three, commonly esteemed the great Climacterical of our lives. For the daies of men are usually cast up

by Septenaries, and every seventh year conceived to carry some altering character with it, either in the temper of body, mind, or both. But among all other, three are most remarkable, that is, 7 times 7 or fourty nine, 9 times 9 or eighty one, and 7 times 9 or the year of Sixty three; which is conceived to carry with it the most considerable fatality; and consisting of both the other numbers was apprehended to comprise the vertue of either: is therefore expected and entertained with fear, and esteemed a favour of fate to pass it over. Which notwithstanding many suspect to be but a Panick terrour, and men to fear they justly know not what: and to speak indifferently, I find no satisfaction: nor any sufficiency in the received grounds to establish a rational fear.

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The great Climacterical, Sixty-three, no such dangerous year.

Now herein to omit Astrological considerations (which are but rarely introduced) the popular foundation whereby it hath continued, is first, the extraordinary power and secret virtue conceived to attend these numbers: whereof we must confess there have not wanted not only especial commendations, but very singular conceptions. Among Philosophers, *Pythagoras* seems to have played the leading part; which was long after continued by his disciples, and the *Italick* School. The Philosophy of *Plato*, and most of the *Platonists* abounds in numeral considerations: above all, *Philo* the learned *Jew*, hath acted this part even to superstition; bestowing divers pages in summing up every thing, which might advantage this number. Which notwithstanding, when a serious Reader shall perpend, he will hardly find any thing that may convince his judgment, or any further perswade, then the lenity of his belief, or prejudgment of reason inclineth.

For first, Not only the number of 7 and 9 from

CHAP. XII considerations abstruse, have been extolled by most, but all or most of the other digits have been as mystically applauded. For the number of One and Three have not been only admired by the Heathens, but from adorable grounds, the unity of God, and mystery of the Trinity admired by many Christians. The number of four stands much admired, not only in the quaternity of the Elements, which are the principles of bodies, but in the letters of the Name of God, which in the *Greek*, *Arabian*, *Persian*, *Hebrew*, and *Egyptian*, consisteth of that number; and was so venerable among the *Pythagoreans*, that they swore by the number four. That of six hath found many leaves in its favour; not only for the daies of the Creation, but its natural consideration, as being a perfect number, and the first that is compleated by its parts; that is, the sixt, the half, and the third, 1. 2. 3. Which drawn into a sum, make six. The number of Ten hath been as highly extolled, as containing even, odd, long, plain, quadrate and cubical numbers; and *Aristotle* observed with admiration, that *Barbarians* as well as *Greeks*, did use numeration unto Ten, which being so general, was not to be judged casual, but to have a foundation in nature. So that not only 7 and 9, but all the rest have had their Elogies, as may be observed at large in *Rhodiginus*, and in several Writers since: every one extolling number, according to his subject, and as it advantaged the present discourse in hand.

Again, They have been commended not only from pretended grounds in nature, but from artificial, casual or fabulous foundations: so have some endeavoured to advance their admiration, from the 9 Muses, from the 7 Wonders of the World, from the 7 Gates of *Thebes*:

in that 7 Cities contended for *Homer*, in that there are 7 Stars in *Ursa minor*, and 7 in Charles wayn, or Plaustrum of *Ursa major*. Wherein indeed although the ground be natural, yet either from constellations or their remarkable parts, there is the like occasion to commend any other number, the number 5 from the stars in *Sagitta*, 3 from the girdle of *Orion*, and 4 from *Equiculus*, *Crusero*, or the feet of the Centaur: yet are such as these clapt in by very good Authors, and some not omitted by *Philo*. CHAP. XII

Nor are they only extolled from Arbitrary and Poetical grounds, but from foundations and principles, false or dubious. That Women are menstruant, and Men pubescent at the year of twice seven is accounted a punctual truth; which period nevertheless we dare not precisely determine, as having observed a variation and latitude in most, agreeable unto the heat of clime or temper; Men arising variously unto virility, according to the activity of causes that promote it. *Sanguis menstruosus ad diem, ut plurimum, septimum durat*, saith *Philo*. Which notwithstanding is repugnant unto experience, and the doctrine of *Hippocrates*, who in his book, *de diæta*, plainly affirmeth, it is thus but with few women, and only such as abound with pituitous and watery humours.

It is further conceived to receive addition, in that there are 7 heads of *Nyle*, but we have made manifest elsewhere, that by the description of Geographers, they have been sometime more, and are at present fewer.

In that there were 7 Wise men of *Greece*, which though generally received, yet having enquired into the verity thereof we cannot so readily determine it, for in the life of *Thales*, who was accounted in that number, *Diogenes Laertius* plainly saith, *Magna de*

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eorum numero discordia est; some holding but four, some ten, others twelve, and none agreeth in their names, though according in their number.

Nuncius Sydereus.

In that there are just 7 Planets or errant Stars in the lower orbs of Heaven, but it is now demonstrable unto sense, that there are many more; as *Galileo* hath declared, that is, two more in the orb of Saturn, and no less then four more in the sphere of Jupiter. And the like may be said of the *Pleiades* or 7 Stars, which are also introduced to magnifie this number, for whereas scarce discerning six, we account them 7, by his relation, there are no less then fourty.

That the Heavens are encompassed with 7 Circles, is also the allegation of *Philo*; which are in his account, the Arctick, Antarctick, the Summer and Winter Tropicks, the Æquator, Zodiack, and the Milky circle; whereas by Astronomers they are received in greater number. For though we leave out the Lacteous circle (which *Aratus*, *Geminus*, and *Proclus*, out of him hath numbred among the rest) yet are there more by four then *Philo* mentions; that is, the Horizon, Meridian and both the Colures; circles very considerable, and generally delivered, not only by *Ptolomie*, and the Astronomers since his time, but such as flourished long before, as *Hipparchus* and *Eudoxus*. So that for ought I know, if it make for our purpose, or advance the theme in hand, with equal liberty, we may affirm there were 7 Sybils, or but 7 signs in the Zodiack circle of Heaven.

Τρὶς μάκαρες Δαναοὶ καὶ τετράκις.

That verse in *Virgil* translated out of *Homer*, *O terque quaterque beati*; that is as men will have it, 7 times happy, hath much advanced this number in critical apprehensions; yet is not this construction so indubitably to be received, as not at all to be ques-

tioned: for though *Rhodiginus*, *Beroaldus*, and others from the authority of *Macrobius* so interpret it, yet *Servius* his ancient commentator conceives no more thereby then a finite number for indefinite, and that no more is implied then often happy. *Strabo* the ancientest of them all, conceives no more by this in *Homer*, then a full and excessive expression; whereas in common phrase and received language, he should have termed them thrice happy; herein exceeding that number, he called them four times happy, that is, more then thrice. And this he illustrates by the like expression of *Homer*, in the speech of *Circe*; who to express the dread and terrour of the Ocean, sticks not unto the common form of speech in the strict account of its reciprocations, but largely speaking, saith, it ebbs and flows no less then thrice a day, *terque die revomit fluctus iterumque resorbet.* And so when it is said by *Horace*, *fœlices ter et amplius*, the exposition is sufficient, if we conceive no more then the letter fairly beareth, that is, four times, or indefinitely more then thrice.

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Lib. 10.

But the main considerations which most set of this number, are observations drawn from the motions of the Moon, supposed to be measured by sevens; and the critical or decretory daies dependent on that number. As for the motion of the Moon, though we grant it to be measured by sevens, yet will not this advance the same before its fellow numbers; for hereby the motion of other Stars are not measured, the fixed Stars by many thousand years, the Sun by 365 daies, the superiour Planets by more, the inferiour by somewhat less. And if we consider the revolution of the first Movable, and the daily motion from East to West, common unto all the Orbs, we shall find it measured

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by another number, for being performed in four and twenty hours, it is made up of 4 times 6: and this is the measure and standard of other parts of time, of months, of years, Olympiades, Lustres, Indictions of Cycles, Jubilies, etc.

What a Solary month is.

Again, Months are not only Lunary, and measured by the Moon, but also Solary, and determined by the motion of the Sun; that is, the space wherein the Sun doth pass 30 degrees of the Ecliptick. By this month

De octomestri partu.

Hippocrates computed the time of the Infants gestation in the womb; for 9 times 30, that is, 270 daies, or compleat 9 months, make up forty weeks, the common compute of women. And this is to be understood, when he saith, 2 daies makes the fifteenth, and 3 the tenth part of a month. This was the month of the ancient *Hebrews* before their departure out of *Egypt*: and hereby the compute will fall out right, and the account concur, when in one place it is said, the waters of the flood prevailed an hundred and fifty daies, and in another it is delivered, that they prevailed from the seventeenth day of the second month, unto the seventeenth day of the seventh. As for hebdomadal periods or weeks, although in regard of their Sabbaths, they were observed by the *Hebrews*, yet it is not apparent the ancient *Greeks* or *Romans* used any: but had another division of their months into Ides, Nones and Calends.

Moreover, Moneths howsoever taken, are not exactly divisible into septenaries or weeks, which fully contain seven daies: whereof four times do make compleatly twenty eight. For, beside the usual or Calendary month, there are but four considerable: the month of Peragration, of Apparition, of Consecution, and the medical or Decretorial month; whereof some come

short, others exceed this account. A month of Peragration, is the time of the Moons revolution from any part of the Zodiack, unto the same again; and this containeth but 27 daies, and about 8 hours: which cometh short to compleat the septenary account. The month of Consecution, or as some will term it, of progression, is the space between one conjunction of the Moon with the Sun, unto another: and this containeth 29 daies and an half: for the Moon returning unto the same point wherein it was kindled by the Sun, and not finding it there again (for in the mean time, by its proper motion it hath passed through 2 signs) it followeth after, and attains the Sun in the space of 2 daies and 4 hours more, which added unto the account of Peragration, makes 29 daies and an half: so that this month exceedeth the latitude of Septenaries, and the fourth part comprehendeth more then 7 daies. A month of Apparition, is the space wherein the Moon appeareth (deducting three daies wherein it commonly disappeareth; and being in combustion with the Sun, is presumed of less activity,) and this containeth but 26 daies and 12 hours. The medical month, not much exceedeth this, consisting of 26 daies and 22 hours, and is made up out of all the other months. For if out of 29 and an half, the month of Consecution, we deduct 3 daies of disappearance, there will remain the month of Apparition 26 daies and 12 hours: whereto if we add 27 daies and 8 hours, the month of Peragration, there will arise 53 daies and 10 hours, which divided by 2, makes 26 daies and 22 hours: called by Physitians the medical month: introduced by *Galen* against *Archigenes*, for the better compute of Decretory or Critical daies. CHAP. XII

As for the Critical daies (such I mean wherein upon

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What a Critical day is.

a decertation between the disease and nature, there ensueth a sensible alteration, either to life or death,) the reasons thereof are rather deduced from Astrology, then Arithmetick: for accounting from the beginning of the disease, and reckoning on unto the seventh day, the Moon will be in a Tetragonal or Quadrate aspect, that is, 4 signs removed from that wherein the disease began: in the fourteenth day it will be in an opposite aspect: and at the end of the third septenary, Tetragonal again: as will most graphically appear in the figures of Astrologers, especially *Lucas Gauricus*, *De diebus decretoriis*.

Again, (Beside that computing by the Medical month, the first hebdomade or septenary consists of 6 daies, seventeen hours and an half, the second happeneth in 13 daies and eleven hours, and the third but in the twentieth natural day) what *Galen* first, and *Aben-Ezra* since observed in his Tract of Critical daies, in regard of Eccentricity and the Epicycle or lesser orb wherein it moveth, the motion of the Moon is various and unequal; whereby the Critical account must also vary. For though its middle motion be equal, and of 13 degrees, yet in the other it moveth sometimes fifteen, sometimes less then twelve. For moving in the upper part of its orb, it performeth its motion more slowly then in the lower; insomuch that being at the height, it arriveth at the Tetragonal and opposite signs sooner, and the Critical day will be in 6 and 13; and being at the lowest, the critical account will be out of the latitude of 7, nor happen before the eighth or ninth day. Which are considerations not to be neglected in the compute of decretory daies, and manifestly declare that other numbers must have a respect herein as well as 7 and fourteen.

Lastly, Some things to this intent are deduced from holy Scripture; thus is the year of *Jubile* introduced to magnifie this number, as being a year made out of 7 times 7; wherein notwithstanding there may be a misapprehension; for this ariseth not from 7 times 7, that is, 49; but was observed the fiftieth year, as is expressed, And you shall hallow the fiftieth year, a *Jubile* shall that fiftieth year be unto you. Answerable whereto is the Exposition of the *Jews* themselves, as is delivered by *Ben-Maimon*; that is, the year of *Jubile*, cometh not into the account of the years of 7, but the fourty ninth is the Release, and the fiftieth the year of *Jubile*. Thus is it also esteemed no small advancement unto this number, that the Genealogy of our Saviour is summed up by 14, that is, this number doubled; according as is expressed. So all the generations from *Abraham* to *David* are fourteen generations, and from *David* unto the carrying away into *Babylon*, are fourteen generations; and from the carrying away into *Babylon* unto *Christ*, are fourteen generations. Which nevertheless must not be strictly understood as numeral relations require; for from *David* unto *Jeconiah* are accounted by *Matthew* but 14 generations; whereas according to the exact account in the History of Kings, there were at least 17; and 3 in this account, that is, *Ahazias*, *Joas* and *Amazias* are left out. For so it is delivered by the Evangelist: And *Joram* begat *Ozias*: whereas in the regal Genealogy there are 3 successions between: for *Ozias* or *Uzziah* was the son of *Amazias*, *Amazias* of *Joas*, *Joas* of *Azariah*, and *Azariah* of *Joram*: so that in strict account, *Joram* was the *Abavus* or Grand-father twice removed, and not the Father of *Ozias*. And these second omitted descents made a very considerable

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Mat. 1.

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measure of time, in the Royal chronology of *Judah*: for though *Azariah* reigned but one year, yet *Joas* reigned fourty, and *Amazias* no less then nine and twenty. However therefore these were delivered by the Evangelist, and carry (no doubt) an incontroulable conformity unto the intention of his delivery: yet are they not appliable unto precise numerality, nor strictly to be drawn unto the rigid test of numbers.

Lastly, Though many things have been delivered by Authors concerning number, and they transferred unto the advantage of their nature, yet are they oft-times otherwise to be understood, then as they are vulgarly received in active and causal considerations; they being many times delivered Hieroglyphically, Metaphorically, Illustratively, and not with reference unto action or causality. True it is, that God made all things in number, weight and measure, yet nothing by them or through the efficacy of either. Indeed our daies, actions and motions being measured by time (which is but motion measured) what ever is observable in any, falls under the account of some number; which notwithstanding cannot be denominated the cause of those events. So do we injustly assign the power of Action even unto Time it self; nor do they speak properly who say that Time consumeth all things; for Time is not effective, nor are bodies destroyed by it, but from the action and passion of their Elements in it; whose account it only affordeth: and measuring out their motion, informs us in the periods and terms of their duration, rather then effecteth or physically produceth the same.

De annis Climactericis. De occultis naturæ miraculis.

A second consideration which promoteth this opinion, are confirmations drawn from Writers, who have made observations, or set down favourable reasons for this

Climacterical year; so have *Henricus Ranzovius*, *Baptista Codronchus*, and *Levinus Lemnius* much confirmed the same; but above all, that memorable Letter of *Augustus* sent unto his Nephew *Caius*, wherein he encourageth him to celebrate his nativity, for he had now escaped Sixty three, the great Climacterical and dangerous year unto man: which notwithstanding rightly perpended, it can be no singularity to question it, nor any new Paradox to deny it. CHAP. XII Bel. lib. 5.

For first, It is implicitely, and upon consequence denied by *Aristotle* in his Politicks, in that discourse against *Plato*, who measured the vicissitude and mutation of States, by a periodical fatality of number. *Ptolomie* that famous Mathematician plainly saith, he will not deliver his doctrines by parts and numbers which are ineffectual, and have not the nature of causes; now by these numbers saith *Rhodiginus* and *Mirandula*, he implieth Climacterical years, that is, septenaries, and novenaries set down by the bare observation of numbers. *Censorinus* an Author of great authority, and sufficient antiquity, speaks yet more amply in his book *De die Natali*, wherein expresly treating of Climacterical daies, he thus delivereth himself. Some maintain that 7 times 7, that is, fourty nine, is most dangerous of any other, and this is the most general opinion; others unto 7 times 7, add 9 times 9, that is, the year of eighty one, both which consisting of square and quadrate numbers, were thought by *Plato* and others to be of great consideration; as for this year of Sixty three or 7 times 9, though some esteem it of most danger, yet do I conceive it less dangerous then the other; for though it containeth both numbers above named, that is, 7 and 9, yet neither of them square or quadrate; and as it

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is different from them both, so is it not potent in either. Nor is this year remarkable in the death of many famous men. I find indeed that *Aristotle* died this year, but he by the vigour of his mind, a long time sustained a natural infirmity of stomack; so that it was a greater wonder he attained unto Sixty three, then that he lived no longer. The Psalm of *Moses* hath mentioned a year of danger differing from all these: and that is ten times 7 or seventy; for so it is said, The daies of Man are threescore and ten. And the very same is affirmed by *Solon*, as *Herodotus* relates in a speech of his unto *Crœsus*, *Ego annis septuaginta humanæ vitæ modum definio*: and surely that year must be of greatest danger, which is the Period of all the rest; and fewest safely pass thorow that, which is set as a bound for few or none to pass. And therefore the consent of elder times, setling their conceits upon Climacters, not only differing from this of ours, but one another; though several Nations and Ages do fancy unto themselves different years of danger, yet every one expects the same event, and constant verity in each.

Again, Though *Varro* divided the daies of man into five proportions, *Hippocrates* into 7, and *Solon* into 10; yet probably their divisions were to be received with latitude, and their considerations not strictly to be confined unto their last unities. So when *Varro* extendeth *Puertia* unto 15. *Adolescentia* unto 30. *Juventus* unto 35. There is a latitude between the terms or Periods of compute, and the verity holds good in the accidents of any years between them. So when *Hippocrates* divideth our life into 7 degrees or stages, and maketh the end of the first 7. Of the second 14. Of the third 28. Of the fourth 35. Of the fift 47.

Of the sixt 56. And of the seventh, the last year when ever it happeneth; herein we may observe, he maketh not his divisions precisely by 7 and 9, and omits the great Climacterical; beside there is between every one at least the latitude of 7 years, in which space or interval, that is either in the third or fourth year, what ever falleth out is equally verified of the whole degree, as though it had happened in the seventh. *Solon* divided it into ten Septenaries, because in every one thereof, a man received some sensible mutation; in the first is Dedention or falling of teeth; in the second Pubescence; in the third the beard groweth; in the fourth strength prevails; in the fift maturity for issue; in the sixt moderation of appetite; in the seventh prudence, etc. Now herein there is a tolerable latitude, and though the division proceed by 7, yet is not the total verity to be restrained unto the last year; nor constantly to be expected the beard should be compleat at 21. or wisdom acquired just in 49. and thus also though 7 times 9 contain one of those septenaries, and doth also happen in our declining years; yet might the events thereof be imputed unto the whole septenary; and be more reasonably entertained with some latitude, then strictly reduced unto the last number, or all the accidents from 56. imputed unto Sixty three. CHAP. XII

Thirdly, Although this opinion may seem confirmed by observation, and men may say it hath been so observed, yet we speak also upon experience, and do believe that men from observation will collect no satisfaction. That other years may be taken against it, especially if they have the advantage to precede it; as sixty against sixty three, and sixty three against sixty six. For fewer attain to the latter then the

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former; and so surely in the first septenary do most die, and probably also in the very first year; for all that ever lived were in the account of that year; beside the infirmities that attend it are so many, and the body that receives them so tender and inconfirmed, we scarce count any alive that is not past it.

De catena temporis.

Fabritius Paduanius discoursing of the great Climacterical, attempts a numeration of eminent men, who died in that year; but in so small a number, as not sufficient to make a considerable Induction. He mentioneth but four, *Diogenes Cynicus*, *Dyonysius Heracleoticus*, *Xenocrates Platonicus*, and *Plato*. As for *Dionysius*, as *Censorinus* witnesseth, he famished himself in the 82 year of his life; *Xenocrates* by the testimony of *Laertius* fell into a cauldron, and died the same year, and *Diogenes* the *Cynick*, by the same testimony lived almost unto ninety. The date of *Plato's* death is not exactly agreed on, but all dissent from this which he determineth: *Neanthes* in *Laertius* extendeth his daies unto 84. *Suidas* unto 82. But *Hermippus* defineth his death in 81. And this account seemeth most exact; for if, as he delivereth, *Plato* was born in the 88 Olympiade, and died in the first year of the 108, the account will not surpass the year of 81, and so in his death he verified the opinion of his life, and of the life of man, whose period, as *Censorinus* recordeth, he placeth in the Quadrate of 9, or 9 times 9, that is, eighty one: and therefore as *Seneca* delivereth, the *Magicians* at *Athens* did sacrifice unto him, as declaring in his death somewhat above humanity; because he died in the day of his nativity, and without deduction justly accomplished the year of eighty one.

Method. Hist.

Bodine I confess, delivers a larger list of men that died in this year, *Moriuntur innumerabiles anno sexagesimo*

tertio, *Aristoteles*, *Chrysippus*, *Bocatius*, *Bernardus*, *Erasmus*, *Lutherus*, *Melancthon*, *Sylvius*, *Alexander*, *Jacobus Sturmius*, *Nicolaus Causanus*, *Thomas Linacer*, *eodem anno Cicero cæsus est*. Wherein beside that it were not difficult to make a larger Catalogue of memorable persons that died in other years, we cannot but doubt the verity of his Induction. As for *Sylvius* and *Alexander*, which of that name he meaneth I know not; but for *Chrysippus*, by the testimony of *Laertius*, he died in the 73 year, *Bocatius* in the 62, *Linacer* the 64, and *Erasmus* exceedeth 70, as *Paulus Jovius* hath delivered in his Elogy of learned men. And as for *Cicero*, as *Plutarch* in his life affirmeth, he was slain in the year of 64; and therefore sure the question is hard set, and we have no easie reason to doubt, when great and entire Authors shall introduce injustifiable examples, and authorize their assertions by what is not authentical. CHAP. XII

Fourthly, They which proceed upon strict numerations, and will by such regular and determined waies measure out the lives of men, and periodically define the alterations of their tempers; conceive a regularity in mutations, with an equality in constitutions, and forget that variety, which Physitians therein discover. For seeing we affirm that women do naturally grow old before men, that the cholerick fall short in longævity of the sanguine, that there is *senium ante senectum*, and many grow old before they arrive at age, we cannot affix unto them all one common point of danger, but should rather assign a respective fatality unto each. Which is concordant unto the doctrine of the numerists, and such as maintain this opinion: for they affirm that one number respecteth Men, another Women, as *Bodin* explaineth that of *Seneca Septimus quisque*

Cholerick men commonly shorter lived.

CHAP. XII *annus ætati signum imprimit*, subjoins *Hoc de maribus dictum oportuit, hoc primum intueri licet, perfectum numerum, id est, sextum fœminas septenarium mares immutare.*

Fiftly, Since we esteem this opinion to have some ground in nature, and that nine times seven revolutions of the Sun, imprints a dangerous Character on such as arrive unto it; it will have some doubt behind, in what subjection hereunto were the lives of our forefathers presently after the flood, and more especially before it; who attaining unto 8 or 900 years, had not their Climacters Computable by digits, or as we do account them; for the great Climacterical was past unto them before they begat Children, or gave any Testimony of their virility; for we read not that any begat children before the age of sixty five. And this may also afford a hint to enquire, what are the Climacters of other animated creatures; whereof the lives of some attain not so far as this of ours, and that of others extend a considerable space beyond it.

Lastly, The imperfect accounts that Men have kept of time, and the difference thereof both in the same and divers common Wealths, will much distract the certainty of this assertion. For though there were a fatality in this year, yet divers were, and others might be out in their account, aberring several waies from the true and just compute, and calling that one year, which perhaps might be another.

For first, They might be out in the commencement or beginning of their account; for every man is many months elder then he computeth. For although we begin the same from our nativity, and conceive that no arbitrary, but natural term of compute, yet for the duration of life or existence, we are liable in the

Womb unto the usual distinctions of time; and are not to be exempted from the account of age and life, where we are subject to diseases, and often suffer death. And therefore *Pythagoras*, *Hippocrates*, *Diocles*, *Avicenna* and others, have set upon us numeral relations and temporal considerations in the womb; not only affirming the birth of the seventh month to be vital, that of the eighth mortal, but the progression thereto to be measured by rule, and to hold a proportion unto motion and formation. As what receiveth motion in the seventh, to be perfected in the Triplicities; that is, the time of conformation unto motion is double, and that from motion unto the birth, treble; So what is formed the 35 day, is moved the seventy, and born the 210 day. And therefore if any invisible causality there be, that after so many years doth evidence it self as Sixty three, it will be questionable whether its activity only set out at our nativity, and begin not rather in the womb, wherein we place the like considerations. Which doth not only entangle this assertion, but hath already embroiled the endeavours of Astrology in the erection of Schemes, and the judgment of death or diseases; for being not incontroulably determined, at what time to begin, whether at conception, animation or exclusion (it being indifferent unto the influence of Heaven to begin at either) they have invented another way, that is, to begin *ab Hora quæstionis*, as *Haly*, *Messahallach*, *Ganivetus*, and *Guido Bonatus* have delivered. CHAP. XII

Again, In regard of the measure of time by months and years, there will be no small difficulty; and if we shall strictly consider it, many have been and still may be mistaken. For neither the motion of the Moon, whereby months are computed; nor of the Sun, whereby

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years are accounted, consisteth of whole numbers, but admits of fractions, and broken parts, as we have already declared concerning the Moon. That of the Sun consisteth of 365 daies, and almost 6 hours, that is, wanting eleven minutes; which 6 hours omitted, or not taken notice of, will in process of time largely deprave the compute; and this is the occasion of the Bissextile or leap-year, which was not observed in all times, nor punctually in all Common-Wealths; so that in Sixty three years there may be lost almost 18 daies, omitting the intercalation of one day every fourth year, allowed for this quadrant, or 6 hours supernumerary. And though the same were observed, yet to speak strictly a man may be somewhat out in the account of his age at Sixty three, for although every fourth year we insert one day, and so fetch up the quadrant, yet those eleven minutes whereby the year comes short of perfect 6 hours, will in the circuit of those years arise unto certain hours; and in a larger progression of time unto certain daies. Whereof at present we find experience in the Calender we observe. For the *Julian* year of 365 daies being eleven minutes larger then the annual revolution of the Sun, there will arise an anticipation in the Æquinoxes; and as *Junctinus* computeth, in every 136 year they will anticipate almost one day. And therefore those ancient men and Nestors of old times, which yearly observed their nativities, might be mistaken in the day; nor that to be construed without a grain of Salt, which is delivered by *Moses*; At the end of four hundred years, even the self same day, all the host of *Israel* went out of the land of *Egypt*. For in that space of time the Æquinoxes had anticipated, and the eleven minutes had amounted far above a day. And this compute rightly

Comment. in Sphæram Ioh. de Sacro bosco.

considered will fall fouler on them who cast up the lives of Kingdoms, and sum up their duration by particular numbers; as *Plato* first began, and some have endeavoured since by perfect and spherical numbers, by the square and cube of 7 and 9 and 12, the great number of *Plato*. Wherein indeed *Bodine* hath attempted a particular enumeration; but (beside the mistakes committible in the solary compute of years) the difference of Chronology disturbs the satisfaction and quiet of his computes; some adding, others detracting, and few punctually according in any one year; whereby indeed such accounts should be made up; for the variation in an unite destroys the total illation. CHAP. XII Mat. Histor.

Thirdly, The compute may be unjust not only in a strict acception, of few daies or hours, but in the latitude also of some years; and this may happen from the different compute of years in divers Nations, and even such as did maintain the most probable way of account: their year being not only different from one another, but the civil and common account disagreeing much from the natural year, whereon the consideration is founded. Thus from the testimony of *Herodotus*, *Censorinus* and others, the *Greeks* observed the Lunary year, that is, twelve revolutions of the Moon, 354 daies; but the *Egyptians*, and many others adhered unto the Solary account, that is, 365 daies, that is, eleven daies longer. Now hereby the account of the one would very much exceed the other: A man in the one would account himself 63, when one in the other would think himself but 61; and so although their nativities were under the same hour, yet did they at different years believe the verity of that which both esteemed affixed and certain unto one. The like mistake there is in a *The Lunary year what.* *The Solary year what.*

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tradition of our daies; men conceiving a peculiar danger in the beginning daies of *May*, set out as a fatal period unto consumptions and Chronical diseases; wherein notwithstanding we compute by Calenders, not only different from our ancestors, but one another; the compute of the one anticipating that of the other; so that while we are in *April*, others begin *May*, and the danger is past unto one, while it beginneth with another.

Fourthly, Men were not only out in the number of some daies, the latitude of a few years, but might be wide by whole Olympiades and divers Decades of years. For as *Censorinus* relateth, the ancient *Arcadians* observed a year of three months, the *Carians* of six, the *Iberians* of four; and as *Diodorus* and *Xenophon de Æquivocis* alleadgeth, the ancient *Egyptians* have used a year of three, two, and one moneth: so that the Climacterical was not only different unto those Nations, but unreasonably distant from ours; for Sixty three will pass in their account, before they arrive so high as ten in ours.

The different account or measure of a year.

Nor if we survey the account of *Rome* it self, may we doubt they were mistaken; and if they feared Climacterical years, might err in their numeration. For the civil year whereof the people took notice, did sometimes come short, and sometimes exceed the natural. For according to *Varro*, *Suetoninus* and *Censorinus*, their year consisted first of ten months; which comprehended but 304 daies, that is, 61 less than ours containeth; after by *Numa* or *Tarquine* from a superstitious conceit of imparity were added 51 daies, which made 355, one day more then twelve revolutions of the Moon. And thus a long time it continued, the civil compute exceeding the natural; the correction whereof,

and the due ordering of the Leap year was referred unto the Pontifices; who either upon favour or malice, that some might continue their offices a longer or shorter time; or from the magnitude of the year that men might be advantaged, or endamaged in their contracts, by arbitrary intercalations depraved the whole account. Of this abuse *Cicero* accused *Verres*, which at last proceeded so far, that when *Julius Cæsar* came unto that office, before the redress hereof he was fain to insert two intercalary months unto *November* and *December*, when he had already inserted 23 daies unto *February*; so that the year consisted of 445 daies; a quarter of a year longer then that we observe; and though at the last the year was reformed, yet in the mean time they might be out wherein they summed up Climacterical observations. CHAP. XII

Lastly, One way more there may be of mistake, and that not unusual among us, grounded upon a double compute of the year; the one beginning from the 25 of *March*, the other from the day of our birth, unto the same again which is the natural account. Now hereupon many men frequently miscast their daies; for in their age they deduce the account not from the day of their birth, but the year of our Lord, wherein they were born. So a man that was born in *January* 1582, if he live to fall sick in the latter end of *March* 1645, will sum up his age, and say I am now Sixty three, and in my Climacterical and dangerous year; for I was born in the year 1582, and now it is 1645, whereas indeed he wanteth many months of that year, considering the true and natural account unto his birth; and accounteth two months for a year: and though the length of time and accumulation of years do render the mistake insensible; yet is it all one, as

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if one born in *January* 1644, should be accounted a year old the 25 of *March* 1645.

All which perpended, it may be easily perceived with what insecurity of truth we adhere unto this opinion; ascribing not only effects depending on the natural period of time unto arbitrary calculations, and such as vary at pleasure; but confirming our tenets by the uncertain account of others and our selves. There being no positive or indisputable ground where to begin our compute; that if there were, men have been several waies mistaken; the best in some latitude, others in greater, according to the different compute of divers states, the short and irreconcilable years of some, the exceeding error in the natural frame of others, and the lapses and false deductions of ordinary accountants in most.

Which duly considered, together with a strict account and critical examen of reason, will also distract the witty determinations of Astrology. That Saturn the enemy of life, comes almost every seventh year, unto the quadrate or malevolent place; that as the Moon about every seventh day arriveth unto a contrary sign, so Saturn, which remaineth about as many years, as the Moon doth daies in one sign, and holdeth the same consideration in years as the Moon in daies; doth cause these periculous periods. Which together with other Planets, and profection of the Horoscope, unto the seventh house, or opposite signs every seventh year; oppresseth living natures, and causeth observable mutations, in the state of sublunary things.

De annis Climactericis.

Further satisfaction may yet be had from the learned discourse of *Salmasius* lately published, if any desire to be informed how different the present observations are from those of the ancients; how every one hath

different Climactericals; with many other observables, impugning the present opinion. CHAP. XII

CHAPTER XIII

Of the Canicular or Dog daies.

WHEREOF to speak distinctly: among the Southern constellations two there are which bear the name of the Dog; the one in 16 degrees of latitude, containing on the left thigh a Star of the first magnitude, usually called Procyon or Anticanis, because say some it riseth before the other; which if truly understood, must be restrained unto those habitations, who have elevation of pole above thirty two degrees. Mention thereof there is in *Horace*, who seems to mistake or confound the one with the other; and after him in *Galen*, who is willing, the remarkablest Star of the other should be called by this name; because it is the first that ariseth in the constellation; which notwithstanding, to speak strictly, it is not; unless we except one of the third magnitude in the right paw in his own and our elevation, and two more on his head in and beyond the degree of Sixty. A second and more considerable one there is, and neighbour unto the other, in 40 degrees of latitude, containing 18 Stars, whereof that in his mouth of the first magnitude, the *Greeks* call Σείριος, the *Latines* *canis major*, and we emphatically the Dog-Star.

Iam Procyon fuerit et stella vesani Leonis.

What the Dog-star is.

Now from the rising of this Star, not cosmically, that is, with the Sun, but Heliacally, that is, its emersion from the raies of the Sun, the Ancients computed their canicular daies; concerning which there

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generally passeth an opinion, that during those daies, all medication or use of physick is to be declined; and the cure committed unto nature. And therefore as though there were any feriation in nature, or justitiums imaginable in professions, whose subject is natural, and under no intermissive, but constant way of mutation; this season is commonly termed the Physitians vacation, and stands so received by most men. Which conceit however general, is not only erroneous, but unnatural, and subsisting upon foundations either false, uncertain, mistaken or misapplied, deserves not of mankind that indubitable assent it findeth.

For first, which seems to be the ground of this assertion, and not to be drawn into question, that is, the magnified quality of this Star conceived to cause, or intend the heat of this season whereby these daies become more observable then the rest: We find that wiser Antiquity was not of this opinion. For, seventeen hundred years ago it was as a vulgar error rejected by *Geminus*, a learned Mathematician in his Elements of Astronomy; wherein he plainly affirmeth, that common opinion made that a cause, which was at first observed but as a sign. The rising and setting both of this Star and others being observed by the Ancients, to denote and testifie certain points of mutation rather then conceived to induce or effect the same. For our fore-fathers, saith he, observing the course of the Sun, and marking certain mutations to happen in his progress through particular parts of the Zodiack, they registred and set them down in their Parapegmes, or Astronomical Canons; and being not able to design these times by daies, months or years (the compute thereof, and the beginning of the year being different, according unto different Nations) they thought best to

settle a general account unto all; and to determine these alterations by some known and invariable signs; and such did they conceive the rising and setting of the fixed Stars; not ascribing thereto any part of causality, but notice and signification. And thus much seems implied in that expression of *Homer*, when speaking of the Dog Star, he concludeth —— *κακὸν δέ τε σῆμα τέτυκται*, *Malum autem signum est*; The same, as *Petavius* observeth, is implied in the word of *Ptolomy*, and the Ancients, *περὶ ἐπισημασιῶν*, that is, of the signification of Stars. The term of Scripture also favours it, as that of *Isaiah*, *Nolite timere à signis cœli*; and that in *Genesis*, *Ut sint in signa et tempora*: Let there be lights in the firmament, and let them be for signs and for seasons. CHAP. XIII

The Primative and leading magnifiers of this Star, were the *Egyptians*, the great admirers of Dogs in Earth and Heaven. Wherein they worshipped *Anubis* or *Mercurius*, the Scribe of *Saturn*, and Counseller of *Osyris*, the great inventor of their religious rites, and Promoter of good unto *Egypt*. Who was therefore translated into this Star; by the *Egyptians* called *Sothis*, and *Siris* by the *Ethiopians*; from whence that *Sirius* or the Dog-star had its name, is by some conjectured. Dionysius Periegesi.

And this they looked upon, not with reference unto heat, but cœlestial influence upon the faculties of man, in order to religion and all sagacious invention; and from hence derived the abundance and great fertility of *Egypt*, the overflow of *Nilus* happening about the ascent hereof. And therefore in hieroglyphical monuments, *Anubis* is described with a Dogs-head, with a Crocodile between his legs, with a sphere in his hand, with two Stars, and a water Pot standing by

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him; implying thereby, the rising and setting of the Dog-star, and the inundation of the River *Nilus*.

But if all were silent, *Galen* hath explained this point unto the life; who expounding the reason why *Hippocrates* declared the affections of the year by the rising and setting of Stars; it was saith he, because he would proceed on signs and principles best known unto all Nations. And upon his words in the first of the Epidemicks, *In Thaso Autumno circa Equinoxium et sub virgilias pluviæ erant multæ*, he thus enlargeth. If (saith he) the same compute of times and months were observed by all Nations, *Hippocrates* had never made any mention either of Arcturus, Pleiades or the Dog-star; but would have plainly said, in *Macedonia*, in the month Dion, thus or thus was the air disposed. But for as much as the month Dion is only known unto the *Macedonians*, but obscure unto the *Athenians* and other Nations, he found more general distinctions of time, and instead of naming months, would usually say, at the Æquinox, the rising of the Pleiades, or the Dog-star. And by this way did the Ancients divide the seasons of the year, the Autumn, Winter, Spring, and Summer. By the rising of the Pleiades, denoting the beginning of Summer, and by that of the Dog-star, the declination thereof. By this way *Aristotle* through all his books of Animals, distinguishing their times of generation, latitancy, migration, sanity and venation. And this were an allowable way of compute, and still to be retained, were the site of the Stars as inalterable, and their ascents as invariable as primitive Astronomy conceived them. And therefore though *Aristotle* frequently mentioneth this Star, and particularly affirmeth that Fishes in the Bosphorus are best catched from the arise of the Dog-

How the Ancients divided the seasons of the year.

star, we must not conceive the same a meer effect thereof. Nor though *Scaliger* from hence be willing to infer the efficacy of this Star, are we induced hereto; except because the same Philosopher affirmeth, that Tunny is fat about the rising of the Pleiades, and departs upon Arcturus, or that most insects are latent, from the setting of the 7 Stars; except, I say, he give us also leave to infer that these particular effects and alterations proceed from those Stars; which were indeed but designations of such quarters and portions of the year, wherein the same were observed. Now what *Pliny* affirmeth of the Orix, that it seemeth to adore this Star, and taketh notice thereof by voice and sternutation; until we be better assured of its verity, we shall not salve the sympathy. CHAP. XIII

Secondly, What slender opinion the Ancients held of the efficacy of this Star, is declarable from their compute. For as *Geminus* affirmeth, and *Petavius* his learned Commentator proveth, they began their account from its Heliacal emersion, and not its cosmical ascent. The cosmical ascention of a Star we term that, when it ariseth together with the Sun, or the same degree of the Ecliptick wherein the Sun abideth: and that the Heliacal, when a Star which before for the vicinity of the Sun was not visible, being further removed, beginning to appear. For the annual motion of the Sun from West to East being far swifter then that of the fixed Stars, he must of necessity leave them on the East while he hasteneth forward, and obscureth others to the West: and so the Moon who performs its motion swifter then the Sun (as may be observed in their Conjunctions and Eclipses) gets Eastward out of his raies; and appears when the Sun is set. If therefore the Dog-star had this effectual heat which is

What the Cosmical.

What the Heliacal ascent of Star is.

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ascribed unto it, it would afford best evidence thereof, and the season would be most fervent, when it ariseth in the probablest place of its activity, that is, the cosmical ascent; for therein it ariseth with the Sun, and is included in the same irradiation. But the time observed by the Ancients was long after this ascent, and in the Heliacal emersion; when it becomes at greatest distance from the Sun, neither rising with it nor near it. And therefore had they conceived any more then a bare signality in this Star, or ascribed the heat of the season therunto, they would not have computed from its Heliacal ascent, which was of inferiour efficacy; nor imputed the vehemency of heat unto those points wherein it was more remiss, and where with less probability they might make out its action.

Thirdly, Although we derive the authority of these daies from observations of the Ancients, yet are our computes very different, and such as confirm not each other. For whereas they observed it Heliacally, we seem to observe it Cosmically; for before it ariseth Heliacally unto our latitude, the Summer is even at an end. Again, we compute not only from different ascents, but also from divers Stars; they from the greater Dog-star, we from the lesser; they from *Orions* we from *Cephalus* his Dog; they from *Scirius*, we from *Procyon*; for the beginning of the Dog-daies with us is set down the 19 of *July*, about which time the lesser Dog-star ariseth with the Sun; whereas the Star of the greater Dog ascendeth not until after that month. And this mistake will yet be larger, if the compute be made stricter, and as Dr. *Bainbrigge* late professor of Astronomy in Oxford, hath set it down. Who in the year 1629 computed, that in the Horizon

Bainb. Canicularis.

of *Oxford* the Dog-star arose not before the fifteenth day of *August*; when in our Almanack accounts, those daies are almost ended. So that the common and received time not answering the true compute, it frustrates the observations of our selves. And being also different from the calculations of the Ancients, their observations confirm not ours, nor ours theirs, but rather confute each other. CHAP. XIII

Nor will the computes of the Ancients be so Authentick unto those, who shall take notice, how commonly they applied the celestial descriptions of other climes unto their own; wherein the learned *Bainbrigius* justly reprehendeth *Manilius*, who transferred the *Ægyptian* descriptions unto the *Roman* account; confounding the observation of the *Greek* and *Barbarick* Spheres.

Fourthly, (which is the Argument of *Geminus*) were there any such effectual heat in this Star, yet could it but weakly evidence the same in Summer; it being about 40 degrees distant from the Sun: and should rather manifest its warming power in the Winter, when it remains conjoyned with the Sun in its Hybernal conversion. For about the 29 of *October*, and in the 16 of *Scorpius* and so again in *January*, the Sun performs his revolution in the same parallel with the Dog-star. Again, If we should impute the heat of this season, unto the co-operation of any Stars with the Sun, it seems more favourable for our times, to ascribe the same unto the constellation of *Leo*. Where besides that the Sun is in his proper house, it is conjoyned with many Stars; whereof two of the first magnitude; and in the 8th of *August* is corporally conjoyned with *Basilicus*; a Star of eminent name in Astrology, and seated almost in the Ecliptick.

Fifthly, If all were granted, that observation and

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reason were also for it, and were it an undeniable truth, that an effectual fervour proceeded from this Star; yet would not the same determine the opinion now in question; it necessarily suffering such restrictions as take off general illations. For first in regard of different latitudes, unto some the canicular daies are in the Winter; as unto such as have no latitude, but live in a right Sphere, that is, under the Equinoctial line; for unto them it ariseth when the Sun is about the Tropick of Cancer; which season unto them is Winter, and the Sun remotest from them. Nor hath the same position in the Summer, that is, in the Equinoctial points, any advantage from it; for in the one point the Sun is at the Meridian, before the Dog-star ariseth; in the other the Star is at the Meridian, before the sun ascendeth.

What latitudes have no Dog-daies at all.

Some latitudes have no canicular daies at all; as namely all those which have more then 73 degrees of Northern Elevation; as the territory of *Nova Zembla*, part of *Greenland* and *Tartary*; for unto that habitation the Dog-star is invisible, and appeareth not above the Horizon.

Unto such latitudes wherein it ariseth, it carrieth a various and very different respect; unto some it ascendeth when Summer is over, whether we compute Heliacally or Cosmically; for though unto *Alexandria* it ariseth in Cancer; yet it ariseth not unto Biarmia Cosmically before it be in Virgo, and Heliacally about the Autumnal Equinox. Even unto the latitude of 52, the efficacy thereof is not much considerable, whether we consider its ascent, Meridian, altitude or abode above the Horizon. For it ariseth very late in the year, about the eighteenth of *Leo*, that is, the 31 of *July*. Of Meridian Altitude it hath but 23 degrees,

so that it plaies but obliquely upon us, and as the Sun doth about the 23 of *January*. And lastly, his abode above the Horizon is not great; for in the eighteenth of *Leo*, the 31 of *July*, although they arise together; yet doth it set above 5 hours before the Sun, that is, before two of the clock, after which time we are more sensible of heat, then all the day before. CHAP. XIII

Secondly, In regard of the variation of the longitude of the Stars, we are to consider (what the Ancients observed not) that the site of the fixed Stars is alterable, and that since elder times they have suffered a large and considerable variation of their longitudes. The longitude of a Star, to speak plainly, is its distance from the first point of numeration toward the East; which first point unto the Ancients was the vernal æquinox. Now by reason of their motion from West to East, they have very much varied from this point: The first Star of Aries in the time of *Meton* the *Athenian* was placed in the very intersection, which is now elongated and removed Eastward 28 degrees; insomuch that now the sign of Aries possesseth the place of Taurus, and Taurus that of Gemini. Which variation of longitude must very much distract the opinion of the Dog star; not only in our daies, but in times before and after; for since the World began it hath arisen in Taurus, and if the World last, may have its ascent in Virgo; so that we must place the canicular daies, that is, the hottest time of the year in the Spring in the first age, and in the Autumn in Ages to come. *What the longitude of a Star is.*

Thirdly, The Stars have not only varied their longitudes, whereby their ascents have altered; but have also changed their declinations, whereby their rising at all, that is, their appearing hath varied. The declination of a Star we call its distance from the Equator. *What the declination of a Star is.*

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Now though the Poles of the world and the Equator be immovable, yet because the Stars in their proper motions from West to East, do move upon the poles of the Ecliptick, distant 23 degrees and an half from the Poles of the Equator, and describe circles parallel not unto the Equator, but the Ecliptick; they must be therefore sometimes nearer, sometimes removed further from the Equator. All Stars that have their distance from the Ecliptick Northward not more then 23 degrees and an half (which is the greatest distance of the Ecliptick from the Equator) may in progression of time have declination Southward, and move beyond the Equator: but if any Star hath just this distance of 23 and an half (as hath Capella on the back of Ericthonius) it may hereafter move under the Equinoctial; and the same will happen respectively unto Stars which have declination Southward. And therefore many Stars may be visible in our Hemisphere, which are not so at present; and many which are at present, shall take leave of our Horizon, and appear unto Southern habitations. And therefore the time may come that the Dog star may not be visible in our Horizon, and the time hath been, when it hath not shewed it self unto our neighbour latitudes. So that canicular daies there have been none, nor shall be; yet certainly in all times some season of the year more notably hot then other.

Lastly, We multiply causes in vain; and for the reason hereof, we need not have recourse unto any Star but the Sun, and continuity of its action. For the Sun ascending into the Northern signs, begetteth first a temperate heat in the air; which by his approach unto the solstice he intendeth; and by continuation increaseth the same even upon declination. For

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running over the same degrees again, that is, in Leo, which he hath done in Taurus, in *July* which he did in *May*; he augmenteth the heat in the latter which he began in the first; and easily intendeth the same by continuation which was well promoted before. So it is observed, that they which dwell between the Tropicks and the Equator, have their second summer hotter and more maturative of fruits then the former. So we observe in the day (which is a short year) the greatest heat about two in the afternoon, when the Sun is past the Meridian (which is his diurnal solstice) and the same is evident from the Thermometer or observations of the weather-glass. So are the colds of the night sharper in the Summer about two or three after midnight, and the frosts in Winter stronger about those hours. So likewise in the year we observe the cold to augment, when the daies begin to increase, though the Sun be then ascensive, and returning from the Winter Tropick. And therefore if we rest not in this reason for the heat in the declining part of Summer, we must discover freezing Stars that may resolve the latter colds of Winter; which whoever desires to invent, let him study the Stars of *Andromeda*, or the nearer constellation of *Pegasus*, which are about that time ascendent.

Why the Dog-daies be so hot.

It cannot therefore seem strange, or savour of singularity that we have examined this point; since the same hath been already denied by some, since the authority and observations of the Ancients rightly understood, do not confirm it, since our present computes are different from those of the Ancients, whereon notwithstanding they depend; since there is reason against it, and if all were granted, yet must it be maintained with manifold restraints, far otherwise then is received. And lastly, since from plain and

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natural principles, the doubt may be fairly salved, and not clapt up from petitionary foundations and principles unestablished.

But that which chiefly promoted the consideration of these daies, and medically advanced the same, was the doctrin of *Hippocrates*; a Physitian of such repute, that he received a testimony from a Christian, that might have been given unto Christ. The first in his book, *de Aere, Aquis, et locis. Syderum ortus*, etc. That is, we are to observe the rising of Stars, especially the Dog-star, Arcturus, and the setting of the Pleiades or seven Stars. From whence notwithstanding we cannot infer the general efficacy of these Stars, or co-efficacy particular in medications. Probably expressing no more hereby then if he should have plainly said, especial notice we are to take of the hottest time in Summer, of the beginning of Autumn and Winter; for by the rising and setting of those Stars were these times and seasons defined. And therefore subjoyns this reason, *Quoniam his temporibus morbi finiuntur*, because at these times diseases have their ends; as Physitians well known, and he elsewhere affirmeth, that seasons determine diseases, beginning in their contraries; as the Spring the diseases of Autumn, and the Summer those of Winter. Now (what is very remarkable) whereas in the some place he adviseth to observe the times of notable mutations, as the Equinoxes, and the Solstices, and to decline Medication ten daies before and after; how precisely soever canicular cautions be considered, this is not observed by Physitians, nor taken notice of by the people. And indeed should we blindly obey the restraints both of Physitians and Astrologers, we should contract the liberty of our prescriptions, and confine the utility of

Qui nec fallere potest nec falli.

Diseases commonly determined, by what seasons.

Physick unto a very few daies. For observing the Dog-daies, and as is expressed, some daies before, likewise ten daies before and after the Equinoctial and Solsticial points; by this observation alone are exempted an hundred daies. Whereunto if we add the two *Egyptian* daies in every month, the interlunary and plenilunary exemptions, the Eclipses of Sun and Moon, conjunctions and oppositions Planetical, the houses of Planets, and the site of the Luminaries under the signs (wherein some would induce a restraint of Purgation or Phlebotomy) there would arise above an hundred more; so that of the whole year the use of Physick would not be secure much above a quarter. Now as we do not strictly observe these daies, so need we not the other; and although consideration be made hereof, yet must we prefer the nearer indications before those which are drawn from the time of the year; or other cælestial relations. CHAP. XIII

The second Testimony is taken out of the last piece of his Age, and after the experience (as some think) of no less then an hundred years, that is, his book of Aphorisms, or short and definitive determinations in Physick. The Aphorism alleadged is this, *Sub Cane et ante Canem difficiles sunt purgationes. Sub Cane et Anticane*, say some including both the Dog-stars; but that cannot consist with the Greek: ὑπὸ κύνα καὶ πρὸ κυνὸς, nor had that Criticism been ever omitted by *Galen*. Now how true this sentence was in the mouth of *Hippocrates*, and with what restraint it must be understood by us, will readily appear from the difference between us both, in circumstantial relations.

When Hippocrates lived.

And first, Concerning his time and Chronology: he lived in the reign of *Artaxerxes Longimanus*, about the 82 Olympiade, 450 years before Christ; and from our

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times above two thousand. Now since that time (as we have already declared) the Stars have varied their longitudes; and having made large progressions from West to East, the time of the Dog-stars ascent must also very much alter. For it ariseth later now in the year, then it formerly did in the same latitude; and far later unto us who have a greater elevation; for in the daies of *Hippocrates* this Star ascended in Cancer, which now ariseth in Leo; and will in progression of time arise in Virgo. And therefore in regard of the time wherein he lived, the Aphorism was more considerable in his daies then in ours, and in times far past then present, and in his Countrey then ours.

The place of his nativity was *Coos*, an Island in the *Myrtoan* Sea, not far from *Rhodes*, described in Maps by the name of *Lango*, and called by the *Turks* who are Masters thereof, *Stancora*; according unto *Ptolomy* of Northern latitude 36 degrees. That he lived and writ in these parts, is not improbably collected from the Epistles that passed betwixt him and *Artaxerxes*; as also between the Citizens of *Abdera*, and *Coos*, in the behalf of *Democritus*. Which place being seated from our latitude of 52, 16 degrees Southward, there will arise a different consideration; and we may much deceive our selves if we conform the ascent of Stars in one place unto another, or conceive they arise the same day of the month in *Coos* and in *England*. For as *Petavius* computes in the first *Julian* year, at *Alexandria* of latitude 31, the Star arose cosmically in the twelfth degree of Cancer, Heliacally the 26, by the compute of *Geminus* about this time at *Rhodes* of latitude 37, it ascended cosmically the 16 of Cancer, Heliacally the first of Leo; and about that time at *Rome* of latitude 42, cosmically the 22 of Cancer, and

Heliacally the first of Leo. For unto places of greater latitude it ariseth ever later; so that in some latitudes the cosmical ascent happeneth not before the twentieth degree of Virgo, ten daies before the Autumnal Equinox, and if they compute Heliacally, after it, in Libra. CHAP. XIII

Again, Should we allow all, and only compute unto the latitude of *Coos*; yet would it not impose a total omission of Physick. For if in the hottest season of that clime, all Physick were to be declined, then surely in many other none were to be used at any time whatsoever; for unto many parts, not only in the Spring and Autumn, but also in the Winter, the Sun is nearer, then unto the clime of *Coos* in the Summer.

The third consideration concerneth purging medicines, which are at present far different from those implied in this Aphorism, and such as were commonly used by *Hippocrates*. For three degrees we make of purgative medicines: The first thereof is very benign, nor far removed from the nature of Aliment, into which, upon defect of working, it is oft-times converted; and in this form do we account *Manna*, *Cassia*, *Tamarindes*, and many more; whereof we find no mention in *Hippocrates*. This second is also gentle having a familiarity with some humor, into which it is but converted if it fail of its operation: of this sort are *Aloe*, *Rhabarb*, *Senna*, etc. Whereof also few or none were known unto *Hippocrates*. The third is of a violent and venemous quality, which frustrate of its action, assumes as it were the nature of poison; such as are Scammoneum, Colocynthis, Elaterium, Euphorbium, Tithymallus, Laureola, Peplum, etc. Of this sort *Hippocrates* made use, even in Fevers, Pleurisies and Quinsies; and that composition is very remarkable which is ascribed unto *Diogenes* in *Ætius*; that is, of

Three degrees of purgations.

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Pepper, Sal Armoniac, Euphorbium, of each an ounce, the Dosis whereof four scruples and an half; which whosoever should take, would find in his bowels more then a canicular heat, though in the depth of Winter; many of the like nature may be observed in *Ætius*, or in the book *De Dinamidiis*, ascribed unto *Galen*, which is the same *verbatim* with the other.

Tetrab. lib. 1. Serm. 3.

Now in regard of the second, and especially the first degree of Purgatives, the Aphorism is not of force; but we may safely use them, they being benign and of innoxious qualities. And therefore *Lucas Gauricus*, who hath endeavoured with many testimonies to advance this consideration, at length concedeth that lenitive Physick may be used, especially when the Moon is well affected in Cancer or in the watery signs. But in regard of the third degree the Aphorism is considerable: purgations may be dangerous; and a memorable example there is in the medical Epistles of *Crucius*, of a *Roman* Prince that died upon an ounce of Diaphœnicon, taken in this season. From the use whereof we refrain not only in hot seasons, but warily exhibit it at all times in hot diseases. Which when necessity requires, we can perform more safely then the Ancients, as having better waies of preparation and correction; that is, not only by addition of other bodies, but separation of noxious parts from their own.

But beside these differences between *Hippocrates* and us, the Physitians of these times and those of Antiquity; the condition of the disease, and the intention of the Physitian, hold a main consideration in what time and place soever. For Physick is either curative or preventive; Preventive we call that which by purging noxious humors, and the causes of diseases, preventeth sickness in the healthy, or the recourse thereof

in the valetudinary; this is of common use at the spring and fall, and we commend not the same at this season. Therapeutick or curative Physick, we term that, which restoreth the Patient unto Sanity, and taketh away diseases actually affecting. Now of diseases some are cronical and of long duration, as quartane Agues, Scurvy, etc. Wherein because they admit of delay we defer the cure to more advantagious seasons; Others we term acute, that is, of short duration and danger, as Fevers, Pleurisies, etc. In which, because delay is dangerous, and they arise unto their state before the Dog-daies determine, we apply present remedies according unto Indications; respecting rather the acuteness of the disease, and precipitancy of occasion, then the rising or setting of Stars; the effects of the one being disputable, of the other assured and inevitable.

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Diseases Chronical and Acute what they be.

And although Astrology may here put in, and plead the secret influence of this Star; yet *Galen* in his Comment, makes no such consideration; confirming the truth of the Aphorism from the heat of the year; and the operation of Medicines exhibited. In regard that bodies being heated by the Summer, cannot so well endure the acrimony of purging Medicines; and because upon purgations contrary motions ensue, the heat of the air attracting the humours outward, and the action of the Medicine retracting the same inward. But these are readily salved in the distinctions before alleadged; and particularly in the constitution of our climate and divers others, wherein the air makes no such exhaustion of spirits. And in the benignity of our Medicines; whereof some in their own natures, others well prepared, agitate not the humors, or make sensible perturbation.

Strong purgations not so well given in the heat of summer, and why.

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Nor do we hereby reject or condemn a sober and regulated Astrology; we hold there is more truth therein then in Astrologers; in some more then many allow, yet in none so much as some pretend. We deny not the influence of the Stars, but often suspect the due application thereof; for though we should affirm that all things were in all things; that heaven were but earth celestified, and earth but heaven terrestrified, or that each part above had an influence upon its divided affinity below; yet how to single out these relations, and duly to apply their actions is a work oft times to be effected by some revelation, and *Cabala* from above, rather then any Philosophy, or speculation here below. What power soever they have upon our bodies, it is not requisite they should destroy our reasons, that is, to make us rely on the strength of Nature, when she is least able to relieve us; and when we conceive the heaven against us, to refuse the assistance of the earth created for us. This were to suffer from the mouth of the Dog above, what others do from the teeth of Dogs below; that is, to be afraid of their proper remedy, and refuse to approach any water, though that hath often proved a cure unto their disease. There is in wise men a power beyond the Stars; and *Ptolomy* encourageth us, that by foreknowledge, we may evade their actions; for, being but universal causes, they are determined by particular agents; which being inclined, not constrained, contain within themselves the casting act, and a power to command the conclusion.

A Problem.

Upon the biting of a mad Dog there ensues an hydrophobia or fear of water.

Lastly, If all be conceded, and were there in this Aphorism an unrestrained truth, yet were it not reasonable from a caution to inferr a non-usance or abolition, from a thing to be used with discretion, not

to be used at all. Because the Apostle bids us beware of Philosophy, heads of extremity will have none at all; an usual fallacy in vulgar and less distinctive brains, who having once overshot the mean, run violently on, and find no rest but in the extreams. CHAP. XIII

Now hereon we have the longer insisted, because the error is material, and concerns oft-times the life of man; an error to be taken notice of by State, and provided against by Princes, who are of the opinion of *Solomon*, that their riches consists in the multitude of their subjects. An error worse then some reputed *Heresies*; and of greater danger to the body, then they unto the soul; which whosoever is able to reclaim, he shall salve more in one summer then *Themison* destroyed in any Autumn; he shall introduce a new way of cure, preserving by Theory, as well as practice, and men not only from death, but from destroying themselves.

A Physitian. Quot Themison ægros Autumno occiderit uno. *Juvenal.*

THE FIFTH BOOK

Of many things questionable as they are commonly described in Pictures.

CHAPTER I

Of the Picture of the Pelecan.

CHAP. I

AND first in every place we meet with the picture of the Pelecan, opening her breast with her bill, and feeding her young ones with the blood distilling from her. Thus is it set forth not only in common Signs, but in the Crest and Schucheon of many Noble families; hath been asserted by many holy Writers, and was an Hierogliphick of piety and pitty among the *Ægyptians*; on which consideration, they spared them at their tables.

Notwithstanding upon enquiry we find no mention hereof in Ancient Zodiographers, and such as have particularly discoursed upon Animals, as *Aristotle*, *Ælian*, *Pliny*, *Solinus* and many more; who seldom forget proprieties of such a nature, and have been very punctual in less considerable Records. Some ground hereof I confess we may allow, nor need we deny a remarkable affection in Pelecans toward their young; for *Ælian* discoursing of Storks, and their affection toward their brood, whom they instruct to fly, and unto whom they re-deliver up

the provision of their Bellies, concludeth at last, that Herons and Pelecans do the like. CHAP. I

As for the testimonies of Ancient Fathers, and Ecclesiastical Writers, we may more safely conceive therein some Emblematical than any real Story: so doth *Eucherius* confess it to be the Emblem of Christ. And we are unwilling literally to receive that account of *Jerom*, that perceiving her young ones destroyed by Serpents, she openeth her side with her bill, by the blood whereof they revive and return unto life again. By which relation they might indeed illustrate the destruction of man by the old Serpent, and his restorement by the blood of Christ: and in this sense we shall not dispute the like relations of *Austine*, *Isidore*, *Albertus*, and many more: and under an Emblematical intention, we accept it in coat-armour.

As for the Hieroglyphick of the *Egyptians*, they erected the same upon another consideration, which was parental affection; manifested in the protection of her young ones, when her nest was set on fire. For as for letting out her blood, it was not the assertion of the *Egyptians*, but seems translated unto the Pelecan from the Vulture, as *Pierius* hath plainly delivered. *Sed quod Pelicanum (ut etiam aliis plerisque persuasum est) rostro pectus dissecantem pingunt, ita ut suo sanguine filios alat, ab Ægyptiorum historiâ valde alienum est, illi enim vulturem tantum id facere tradiderunt.*

And lastly, as concerning the picture, if naturally examined, and not Hierogliphically conceived, it containeth many improprieties, disagreeing almost in all things from the true and proper description. For, whereas it is commonly set forth green or yellow, in its proper colour, it is inclining to white; excepting the extremities or tops of the wing feathers, which are

CHAP. I

brown. It is described in the bigness of a Hen, whereas it approacheth and sometimes exceedeth the magnitude of a Swan. It is commonly painted with a short bill; whereas that of the Pelecan attaineth sometimes the length of two spans. The bill is made acute or pointed at the end; whereas it is flat and broad, though somewhat inverted at the extream. It is described like fissipedes, or birds which have their feet or claws divided; whereas it is palmipedous, or fin-footed like Swans and Geese; according to the method of nature, in latirostrous or flat-bild birds; which being generally swimmers, the organ is wisely contrived unto the action, and they are framed with fins or oars upon their feet; and therefore they neither light, nor build on trees, if we except Cormorants, who make their nests like Herons. Lastly, there is one part omitted more remarkable than any other, that is, the chowle or crop adhering unto the lower side of the bill, and so descending by the throat: a bag or sachel very observable, and of a capacity almost beyond credit; which notwithstanding, this animal could not want; for therein it receiveth Oysters, Cochels, Scollops, and other testaceous animals; which being not able to break, it retains them until they open, and vomiting them up, takes out the meat contained. This is that part preserved for a rarity and wherein (as *Sanctius* delivers) in one dissected, a *Negro* child was found.

The bigness of a Pelecan.

Of her Crop.

A possibility there may be of opening and bleeding their breast; for this may be done by the uncous and pointed extremity of their bill: and some probability also that they sometimes do it, for their own relief, though not for their young ones; that is by nibling and biting themselves on their itching part of their breast, upon fullness or acrimony of blood. And the

same may be better made out; if (as some relate) their feathers on that part are sometimes observed to be red and tincted with blood. CHAP. I

CHAPTER II

Of the Picture of Dolphins.

THAT Dolphins are crooked, is not only affirmed by the hand of the Painter, but commonly conceived their natural and proper figure; which is not only the opinion of our times, but seems the belief of elder times before us. For, beside the expressions of *Ovid* and *Pliny*, their Pourtraicts in some ancient Coyns are framed in this figure, as will appear in some thereof in *Gesner*, others in *Goltsius*, and *Lævinus Hulsius* in his discription of Coyns, from *Julius Cæsar* unto *Rhodulphus* the second.

Notwithstanding, to speak strictly in their natural figure they are streight, nor have their spine convexed, or more considerably embowed, than Sharks, Porposes, Whales, and other Cetaceous animals, as *Scaliger* plainly affirmeth: *Corpus habet non magis curvum quam reliqui pisces.* As ocular enquiry informeth; and as unto such as have not had the opportunity to behold them, their proper pourtraicts will discover in *Rondeletius*, *Gesner*, and *Aldrovandus*. And as indeed is deducible from pictures themselves; for though they be drawn repandous, or convexedly crooked in one piece, yet the Dolphin that carrieth Arion is concavously inverted, and hath its spine depressed in another. And answerably hereto may we behold them differently bowed in medalls, and the Dolphins of

CHAP. II

Tarus and *Fulius* do make another flexure from that of *Commodus* and *Agrippa*.

And therefore what is delivered of their incurvity, must either be taken Emphatically, that is, not really but in appearance; which happeneth, when they leap above water, and suddenly shoot down again; which is a fallacy in vision, whereby straight bodies in a sudden motion protruded obliquely downward, appear unto the eye crooked; and this is the construction of *Bellonius*. Or if it be taken really, it must not universally and perpetually; that is, not when they swim and remain in their proper figures, but only when they leap, or impetuously whirl their bodies any way; and this is the opinion of *Gesnerus*. Or lastly, It may be taken neither really nor emphatically, but only Emblematically: for being the Hieroglyphick of celerity, and swifter than other animals, men best expressed their velocity by incurvity, and under some figure of a bow: and in this sense probably do Heralds also receive it, when from a Dolphin extended, they distinguish a Dolphin embowed.

And thus also must that picture be taken of a Dolphin clasping an Anchor: that is, not really, as is by most conceived out of affection unto man, conveighing the Anchor unto the ground: but emblematically, according as *Pierius* hath expressed it, The swiftest animal conjoyned with that heavy body, implying that common moral, *Festina lentè*: and that celerity should always be contempered with cunctation.

CHAPTER III

Of the Picture of a Grashopper.

THERE is also among us a common description and picture of a Grashopper, as may be observed in the pictures of Emblematists, in the coats of several families, and as the word *Cicada* is usually translated in Dictionaries. Wherein to speak strictly, if by this word Grashopper, we understand that animal which is implied by τέττιξ with the *Greeks*, and by *Cicada* with the *Latines*; we may with safety affirm the picture is widely mistaken, and that for ought enquiry can inform, there is no such insect in *England*. Which how paradoxical soever, upon a strict enquiry, will prove undeniable truth.

For first, That animal which the *French* term *Sauterelle*, we a Grashopper, and which under this name is commonly described by us, is named Ἀκρις by the *Greeks*, by the *Latines Locusta*, and by our selves in proper speech a Locust; as in the diet of John *Baptist*, and in our Translation, the *Locusts* have no King, yet Prov. 30. go they forth all of them by bands. Again, Between the *Cicada* and that we call a Grashopper, the differences are very many, as may be observed in themselves, or their descriptions in *Matthiolus*, *Aldrovandus* and *Muffetus*. For first, They are differently cucullated or capuched upon the head and back, and in the *Cicada* the eyes are more prominent: the Locusts have *Antennæ* or long horns before, with a long falcation or forcipated tail behind; and being ordained for saltation, their hinder legs do far exceed the other. The Locust or our Grashopper hath teeth, the *Cicada* none at all; nor any mouth according unto *Aristotle*: the

CHAP. III

Cicada is most upon trees; and lastly, the fritinnitus or proper note thereof, is far more shril than that of the Locust; and its life so short in Summer, that for provision it needs not have recourse unto the providence of the Pismire in Winter.

And therefore where the *Cicada* must be understood, the pictures of Heralds and Emblematists are not exact, nor is it safe to adhere unto the interpretation of Dictionaries; and we must with candour make out our own Translations: for in the Plague of *Ægypt*, *Exodus* 10. the word Ἀκρις is translated a Locust, but in the same sense and subject, *Wisdom* 16. it is translated a Grashopper; For them the bitings of Grashoppers and flies killed: whereas we have declared before, the *Cicada* hath no teeth, but is conceived to live upon dew; and the possibility of its subsistence is disputed by *Licetus*. Hereof I perceive *Muffetus* hath taken notice, dissenting from *Langius* and *Lycostenes*, while they deliver, the *Cicada's* destroyed the fruits in *Germany*, where that insect is not found; and therefore concludeth, *Tam ipsos quam alios deceptos fuisse autumo, dum locustas cicadas esse vulgari errore crederent.*

And hereby there may be some mistake in the due dispensation of Medicines desumed from this animal; particularly of Diatettigon commended by *Ætius* in the affections of the kidnies. It must be likewise understood with some restriction what hath been affirmed by *Isidore*, and yet delivered by many, that Cicades are bred out of Cuccow spittle or Woodsear; that is, that spumous, frothy dew or exudation, or both, found upon Plants, especially about the joints of Lavender and Rosemary, observable with us about the latter end of May. For here the true *Cicada* is not bred,

but certain it is, that out of this, some kind of Locust doth proceed; for herein may be discovered a little insect of a festucine or pale green, resembling in all parts a Locust, or what we call a Grashopper.

Lastly, The word it self is improper, and the term of Grashopper not appliable unto the *Cicada*; for therein the organs of motion are not contrived for saltation, nor are the hinder legs of such extension, as is observable in salient animals, and such as move by leaping. Whereto the Locust is very well conformed; for therein the legs behind are longer than all the body, and make at the second joynt acute angles, at a considerable advancement above their backs.

The mistake therefore with us might have its original from a defect in our language; for having not the insect with us, we have not fallen upon its proper name, and so make use of a term common unto it and the Locust; whereas other countries have proper expressions for it. So the *Italian* calls it *Cicada*, the *Spaniard Cigarra*, and the *French Cigale*; all which appellations conform unto the original, and properly express this animal. Whereas our word is borrowed from the Saxon Gærsthopp, which our forefathers, who never beheld the *Cicada*, used for that insect which we yet call a Grashopper.

CHAPTER IV

Of the Picture of the Serpent tempting Eve.

IN the Picture of Paradise, and delusion of our first Parents, the Serpent is often described with humane visage; not unlike unto *Cadmus* or his wife, in the act of their Metamorphosis. Which is

CHAP. IV

not a meer pictorial contrivance or invention of the Picturer, but an ancient tradition and conceived reality, as it stands delivered by *Beda* and Authors of some antiquity; that is, that Sathan appeared not unto *Eve* in the naked form of a Serpent, but with a Virgins head, that thereby he might become more acceptable, and his temptation find the easier entertainment. Which nevertheless is a conceit not to be admitted, and the plain and received figure, is with better reason embraced.

For first, as *Pierius* observeth from *Barcephas*, the assumption of humane shape had proved a disadvantage unto Sathan; affording not only a suspicious amazement in *Eve*, before the fact, in beholding a third humanity beside her self and *Adam*; but leaving some excuse unto the woman, which afterward the man took up with lesser reason; that is, to have been deceived by another like her self.

Again, There was no inconvenience in the shape assumed, or any considerable impediment that might disturb that performance in the common form of a Serpent. For whereas it is conceived the woman must needs be afraid thereof, and rather flie than approach it; it was not agreeable unto the condition of Paradise and state of innocency therein; if in that place as most determine, no creature was hurtful or terrible unto man, and those destructive effects they now discover succeeded the curse, and came in with thorns and briars. And therefore *Eugubinus* (who affirmeth this Serpent was a Basilisk) incurreth no absurdity, nor need we infer that *Eve* should be destroyed immediately upon that Vision. For noxious animals could offend them no more in the Garden, than *Noah* in the Ark: as they peaceably received their names, so they

friendly possessed their natures: and were their conditions destructive unto each other, they were not so unto man, whose constitutions then were antidotes, and needed not fear poisons. And if (as most conceive) there were but two created of every kind, they could not at that time destroy either man or themselves; for this had frustrated the command of multiplication, destroyed a species, and imperfected the Creation. And therefore also if *Cain* were the first man born, with him entred not only the act, but the first power of murther; for before that time neither could the Serpent nor *Adam* destroy *Eve*, nor *Adam* and *Eve* each other; for that had overthrown the intention of the world, and put its Creator to act the sixth day over again. CHAP IV

Moreover, Whereas in regard of speech, and vocal conference with *Eve*, it may be thought he would rather assume an humane shape and organs, then the improper form of a serpent; it implies no material impediment. Nor need we to wonder how he contrived a voice out of the mouth of a Serpent, who hath done the like out of the belly of a Pythonissa, and the trunk of an Oak; as he did for many years at *Dodona*.

Lastly, Whereas it might be conceived that an humane shape was fitter for this enterprise; it being more than probable she would be amazed to hear a Serpent speak; some conceive she might not yet be certain that only man was priviledged with speech; and being in the novity of the Creation, and inexperience of all things, might not be affrighted to hear a Serpent speak. Beside she might be ignorant of their natures, who was not versed in their names, as being not present at the general survey of Animals, when *Adam* assigned unto every one a name con- *Why* Eve *wondered not at the serpents speaking.*

CHAP. IV

cordant unto its nature. Nor is this my opinion, but the determination of *Lombard* and *Tostatus*; and also the reply of *Cyril* unto the objection of *Julian*, who compared this story unto the fables of the *Greeks*.

CHAPTER V

Of the Picture of *Adam* and *Eve* with Navels.

ANOTHER mistake there may be in the Picture of our first Parents, who after the manner of their posterity are both delineated with a Navel. And this is observable not only in ordinary and stained pieces, but in the Authentick draughts of *Urbin*, *Angelo* and others. Which notwithstanding cannot be allowed, except we impute that unto the first cause, which we impose not on the second; or what we deny unto nature, we impute unto Naturity it self; that is, that in the first and most accomplished piece, the Creator affected superfluities, or ordained parts without use or office.

What the Navel is, and for what use.

For the use of the Navel is to continue the Infant unto the Mother, and by the vessels thereof to convey its aliment and sustentation. The vessels whereof it consisteth, are the umbilical vein, which is a branch of the Porta, and implanted in the Liver of the Infant; two Arteries likewise arising from the Iliacal branches, by which the Infant receiveth the purer portion of blood and spirits from the mother; and lastly, the Urachos or ligamental passage derived from the bottom of the bladder, whereby it dischargeth the waterish and urinary part of its aliment. Now upon the birth, when the Infant forsaketh the womb, although it dilacerate, and break the involving membranes, yet do

these vessels hold, and by the mediation thereof the Infant is connected unto the womb, not only before, but a while also after the birth. These therefore the midwife cutteth off, contriving them into a knot close unto the body of the Infant; from whence ensueth that tortuosity or complicated modosity we usually call the Navel; occasioned by the colligation of vessels before mentioned. Now the Navel being a part, not precedent, but subsequent unto generation, nativity or parturition, it cannot be well imagined at the creation or extraordinary formation of *Adam*, who immediately issued from the Artifice of God; nor also that of *Eve*; who was not solemnly begotten, but suddenly framed, and anomalously proceeded from *Adam*.

CHAP. V

That Adam *and* Eve *had not Navels.*

And if we be led into conclusions that *Adam* had also this part, because we behold the same in our selves, the inference is not reasonable; for if we conceive the way of his formation, or of the first animals, did carry in all points a strict conformity unto succeeding productions, we might fall into imaginations that *Adam* was made without Teeth; or that he ran through those notable alterations in the vessels of the heart, which the Infant suffereth after birth: we need not dispute whether the egg or bird were first; and might conceive that Dogs were created blind, because we observe they are littered so with us. Which to affirm, is to confound, at least to regulate creation unto generation, the first Acts of God, unto the second of Nature; which were determined in that general indulgence, Encrease and Multiply, produce or propagate each other; that is, not answerably in all points, but in a prolonged method according to seminal progression. For the formation of things at first was different from their generation after; and although it had nothing to pre-

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cede it, was aptly contrived for that which should succeed it. And therefore though *Adam* were framed without this part, as having no other womb than that of his proper principles, yet was not his posterity without the same: for the seminality of his fabrick contained the power thereof; and was endued with the science of those parts whose predestinations upon succession it did accomplish.

All the Navel therefore and conjunctive part we can suppose in *Adam*, was his dependency on his Maker, and the connexion he must needs have unto heaven, who was the Son of God. For holding no dependence on any preceding efficient but God; in the act of his production there may be conceived some connexion, and *Adam* to have been in a momental Navel with his Maker. And although from his carnality and corporal existence, the conjunction seemeth no nearer than of causality and effect; yet in his immortal and diviner part he seemed to hold a nearer coherence, and an umbilicality even with God himself. And so indeed although the propriety of this part be found but in some animals, and many species there are which have no Navel at all; yet is there one link and common connexion, one general ligament, and necessary obligation of all what ever unto God. Whereby although they act themselves at distance, and seem to be at loose; yet do they hold a continuity with their Maker. Which catenation or conserving union when ever his pleasure shall divide, let go, or separate, they shall fall from their existence, essence, and operations: in brief, they must retire unto their primitive nothing, and shrink into their Chaos again.

They who hold the egg was before the Bird, prevent this doubt in many other animals, which also extendeth

unto them: For birds are nourished by umbilical vessels, and the Navel is manifest sometimes a day or two after exclusion. The same is probable in oviparous exclusions, if the lesser part of eggs must serve for the formation, the greater part for nutriment. The same is made out in the eggs of Snakes; and is not improbable in the generation of Porwiggles or Tadpoles, and may be also true in some vermiparous exclusions: although (as we have observed in the daily progress in some) the whole Maggot is little enough to make a Fly, without any part remaining. CHAP. V

CHAPTER VI

Of the Pictures of Eastern Nations, and the *Jews* at their Feasts, especially our *Saviour* at the Passover.

CONCERNING the Pictures of the *Jews*, and Eastern Nations at their Feasts, concerning the gesture of our Saviour at the Passover, who is usually described sitting upon a stool or bench at a square table, in the middest of the twelve, many make great doubt; and (though they concede a table-gesture) will hardly allow this usual way of Session.

Wherein restraining no mans enquiry, it will appear that accubation, or lying down at meals was a gesture used by very many Nations. That the *Persians* used it, beside the testimony of humane Writers, is deducible from that passage in *Esther*. That when the King returned into the place of the banquet of wine, *Haman* was fallen upon the bed whereon *Esther* was. That the *Parthians* used it, is evident from *Athenæus*, who Esther 7.

CHAP. VI

delivereth out of *Possidonius*, that their King lay down at meals, on an higher bed than others. That *Cleopatra* thus entertained *Anthony*, the same Author manifesteth when he saith, she prepared twelve Tricliniums. That it was in use among the *Greeks*, the word Triclinium implieth, and the same is also declarable from many places in the Symposiacks of *Plutarch*. That it was not out of fashion in the days of *Aristotle*, he declareth in his politicks; when among the Institutionary rules of youth, he adviseth they might not be permitted to hear Iambicks and Tragedies before they were admitted unto discumbency or lying along with others at their meals. That the *Romans* used this gesture at repast, beside many more, is evident from *Lipsius*, *Mercurialis*, *Salmasius* and *Ciaconius*, who have expresly and distinctly treated hereof.

Now of their accumbing places, the one was called Stibadion and Sigma, carrying the figure of an half Moon, and of an uncertain capacity, whereupon it received the name of Hexaclinon, Octoclinon, according unto that of *Martial*,

Accipe Lunata scriptum testudine Sigma:
Octo capit, veniat quisquis amicus erit.

Hereat in several ages the left and right horn were the principal places, and the most honorable person, if he were not master of the feast, possessed one of those rooms. The other was termed Triclinium, that is, Three beds about a table, as may be seen in the figures thereof, and particularly in the *Rhamnusian* Triclinium, set down by *Mercurialis*. The customary use hereof was probably deduced from the frequent use of bathing, after which they commonly retired to bed, and refected themselves with repast; and so that custom by degrees changed their cubiculary beds into

Merc. De Arte Gymnastica.

discubitory, and introduced a fashion to go from the bathes unto these. CHAP. VI

As for their gesture or position, the men lay down leaning on their left elbow, their back being advanced by some pillow or soft substance: the second lay so with his back towards the first, that his head attained about his bosome; and the rest in the same order. For women, they sat sometimes distinctly with their sex, sometime promiscuously with men, according to affection or favour, as is delivered by *Juvenal*, *The ancient gesture or position of the body at feasts.*

Gremio jacuit nova nupta mariti.

And by *Suetonius* of *Caligula*, that at his feasts he placed his sisters, with whom he had been incontinent, successively in order below him.

Again, As their beds were three, so the guests did not usually exceed that number in every one; according to the ancient Laws, and proverbial observations to begin with the Graces, and make up their feasts with the Muses. And therefore it was remarkable in the Emperour *Lucius Verus*, that he lay down with twelve: which was, saith *Julius Capitolinus*, *præter exempla majorum*, not according to the custom of his Predecessors, except it were at publick and nuptial suppers. The regular number was also exceeded in this last supper, whereat there were no less than thirteen, and in no place fewer than ten, for, as *Josephus* delivereth, it was not lawful to celebrate the Passover with fewer than that number.

Lastly, For the disposing and ordering of the persons: The first and middle beds were for the guests, the third and lowest for the Master of the house and his family; he always lying in the first place of the last bed, that is, next the middle bed; but if the wife or children

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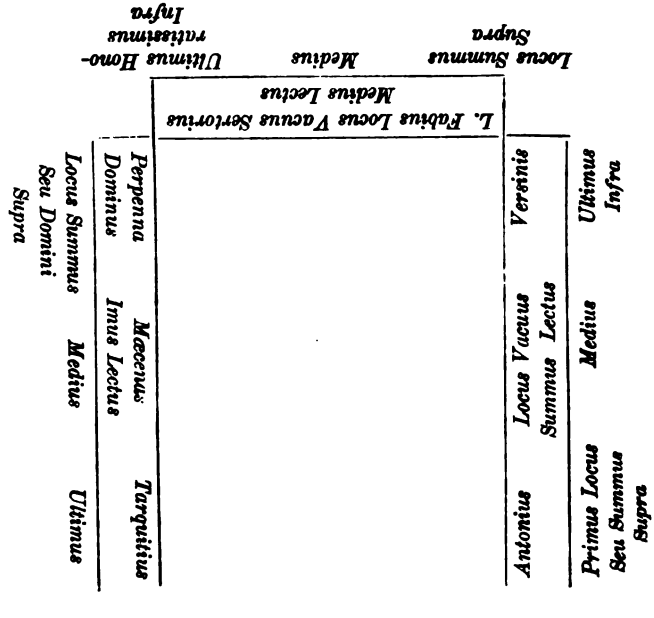
Who the Umbræ were at banquets.

were absent, their rooms were supplied by the Umbræ, or hangers on, according to that of *Juvenal* —— *Locus est et pluribus Umbris*. For the guests, the honourablest place in every bed was the first, excepting the middle or second bed; wherein the most honourable Guest of the feast was placed in the last place, because by that position he might be next the Master of the feast. For the Master lying in the first of the last bed, and the principal Guest in the last place of the second, they must needs be next each other; as this figure doth plainly declare, and whereby we may apprehend the feast of *Perpenna* made unto *Sertorius*, described by *Salustius*, whose words we shall thus read with *Salmasius*: *Igitur discubuere, Sertorius inferior in medio lecto, supra Fabius; Antonius in summo; Infra Scriba Sertorii Versius; alter scriba Mœcenas in Imo, medius inter Tarquitium et Dominum Perpennam.*

Iul. Scalig. familiarium exercitationum Problema 1.



At this feast there were but seven; the middle places of the highest and middle bed being vacant; and hereat was *Sertorius* the General and principal guest slain. And so may we make out what is delivered by *Plutarch* in his life, that lying on his back, and raising himself up, *Perpenna* cast himself upon his stomack; which he might very well do, being Master of the feast, and lying next unto him. And thus also from this Tricliniary disposure, we may illustrate that obscure expression of *Seneca*; That the Northwind was in the middle, the North-East on the higher side, and the North-West on the lower. For as appeareth in the circle of the winds, the North-East will answer the bed of *Antonius*, and the North-West that of *Perpenna*. CHAP. VI

That the custom of feasting upon beds was in use among the *Hebrews*, many deduce from *Ezekiel*. Thou sattest upon a stately bed, and a table prepared before it. The custom of Discalceation or putting off their shoes at meals, is conceived to confirm the same; as by that means keeping their beds clean; and therefore they had a peculiar charge to eat the Passover with their shooes on; which Injunction were needless, if they used not to put them off. However it were in times of high antiquity, probable it is that in after ages they conformed unto the fashions of the *Assyrians* and Eastern Nations, and lastly of the *Romans*, being reduced by *Pompey* unto a Provincial subjection. Ezek. 23.

That this discumbency at meals was in use in the days of our Saviour, is conceived probable from several speeches of his expressed in that phrase, even unto common Auditors, as *Luke* 14. *Cum invitatus fueris ad nuptias, non discumbas in primo loco*, and besides many more, *Matthew* 23. When reprehending the *Scribes* and *Pharises*, he saith, *Amant protoclisias, id est, primos*

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recubitus in cœnis, et protocathedrias, sive, primas cathedras, in Synagogis: wherein the terms are very distinct, and by an Antithesis do plainly distinguish the posture of sitting, from this of lying on beds. The consent of the *Jews* with the *Romans* in other ceremonies and rites of feasting, makes probable their conformity in this. The *Romans* washed, were anointed, and wore a cenatory garment: and that the same was practised by the *Jews*, is deduceable from that expostu-

Luke 7. lation of our Saviour with *Simon*, that he washed not his feet, nor anointed his head with oyl; the common

Matth. 22. civilities at festival entertainments; and that expression of his concerning the cenatory or wedding garment; and as some conceive of the linnen garment of the young man or St. *John*; which might be the same he wore the night before at the last Supper.

That they used this gesture at the Passover, is more than probable from the testimony of *Jewish* Writers, and particularly of *Ben-maimon* recorded by *Scaliger De emendatione temporum*. After the second cup

Exod. 12. according to the Institution. The Son asketh, what meaneth this service? Then he that maketh the declaration, saith, How different is this night from all other nights? for all other nights we wash but once but this night twice; all other we eat leavened or unleavened bread, but this only leavened; all other we eat flesh roasted, boyled or baked, by this only roasted, all other nights we eat together lying or sitting, but this only lying along. And this posture they used as a token of rest and security which they enjoyed, far different from that at the eating of the Passover in *Ægypt*.

That this gesture was used when our Saviour eat the Passover, is not conceived improbable from the words

whereby the Evangelists express the same, that is, ἀναπίπτειν, ἀνακεῖσθαι, κατακεῖσθαι, ἀνακλειθῆναι, which terms do properly signifie this Gesture in *Aristotle*, *Athenæus*, *Euripides*, *Sophocles*, and all humane Authors; and the like we meet with in the paraphrastical expression of *Nonnus*. CHAP. VI

Lastly, If it be not fully conceded, that this gesture was used at the Passover, yet that it was observed at the last supper, seems almost incontrovertible: for at this feast or cenatory convention, learned men make more than one supper, or at least many parts thereof. The first was that Legal one of the Passover, or eating of the Paschal Lamb with bitter herbs, and ceremonies described by *Moses*. Of this it is said, then when the even was come he sat down with the twelve. This is supposed when it is said, that the supper being ended, our Saviour arose, took a towel and washed the disciples feet. The second was common and Domestical, consisting of ordinary and undefined provisions; of this it may be said, that our Saviour took his garment, and sat down again, after he had washed the Disciples feet, and performed the preparative civilities of suppers; at this 'tis conceived the sop was given unto *Judas*, the Original word implying some broath or decoction, not used at the Passover. The third or latter part was Eucharistical, which began at the breaking and blessing of the bread, according to that of *Matthew*, And as they were eating, Jesus took bread and blessed it. Matth. 26. John 13.

Now although at the Passover or first supper, many have doubted this Reclining posture, and some have affirmed that our Saviour stood; yet that he lay down at the other, the same men have acknowledged, as *Chrysostom*, *Theophylact*, *Austin*, and many more. And if the tradition will hold, the position is unquestion- De veterum ritibus.

CHAP. VI able; for the very Triclinium is to be seen at *Rome*, brought thither by *Vespasian*, and graphically set forth by *Casalius*.

Thus may it properly be made out; what is delivered, *John* 13. *Erat recumbens unus ex Discipulis ejus in sinu Jesu quem diligebat*; Now there was leaning on Jesus bosom one of his Disciples whom Jesus loved; which gesture will not so well agree unto the position of sitting, but is natural, and cannot be avoided in the Laws of accubation. And the very same expression is to be found in *Pliny*, concerning the Emperour *Nerva* and *Veiento* whom he favoured; *Cœnabat Nerva cum paucis, Veiento recumbebat proprius atque etiam in sinu*; and from this custom arose the word ἐπιστήθιος, that is, a near and bosom friend. And therefore *Causabon* justly rejecteth *Theophylact*; who not considering the ancient manner of decumbency, imputed this gesture of the beloved Disciple unto Rusticity, or an act of incivility. And thus also have some conceived, it may be more plainly made out what is delivered of *Mary Magdalen*. That she stood at Christs feet behind him weeping, and began to wash his feet with tears, and did wipe them with the hairs of her head. Which actions, if our Saviour sat, she could not perform standing, and had rather stood behind his back, than at his feet. And therefore it is not allowable, what is observable in many pieces, and even of *Raphael Urbin*; wherein *Mary Magdalen* is pictured before our Saviour, washing his feet on her knees; which will not consist with the strict description and letter of the Text.

Not in Evan. Luke 7.

Now whereas this position may seem to be discountenanced by our Translation, which usually renders it sitting, it cannot have that illation, for the *French* and *Italian* Translations expressing neither position of

session or recubation, do only say that he placed himself at the table; and when ours expresseth the same by sitting, it is in relation unto our custom, time, and apprehension. The like upon occasion is not unusual: so when it is said, *Luke* 4. πτύξας τὸ βιβλίον, and the Vulgar renders it, *Cum plicasset librum*, ours translateth it, he shut or closed the book; which is an expression proper unto the paginal books of our times, but not so agreeable unto volumes or rolling books in use among the *Jews*, not only in elder times, but even unto this day. So when it is said, the *Samaritan* delivered unto the host two pence for the provision of the *Levite*; and when our Saviour agreed with the Labourers for a penny a day, in strict translation it should be seven pence half penny; and is not to be conceived our common penny, the sixtieth part of an ounce. For the word in the Original is δηνάριον, in Latine, *Denarius*, and with the *Romans* did value the eight part of an ounce, which after five shillings the ounce amounteth unto seven pence half penny of our money.

CHAP. VI

What Denarius, *or the penny in the Gospel is.*

Lastly, Whereas it might be conceived that they eat the Passover standing rather than sitting, or lying down, according to the Institution, *Exod.* 12. Thus shall you eat, with your loins girded, your shooes on your feet, and your staff in your hand; the *Jews* themselves reply, this was not required of succeeding generations, and was not observed, but in the Passover of *Ægypt*. And so also many other injunctions were afterward omitted, as the taking up of the Paschal Lamb, from the tenth day, the eating of it in their houses dispersed; the striking of the blood on the door posts, and the eating thereof in hast. Solemnities and Ceremonies primitively enjoyned, afterward omitted; as was also this of station, for the occasion

Ceremonies of the Passover omitted.

CHAP. VI ceasing, and being in security, they applied themselves unto gestures in use among them.

Now in what order of recumbancy Christ and the Disciples were disposed, is not so easily determined. *Casalius* from the Lateran Triclinium will tell us, that there being thirteen, five lay down in the first bed, five in the last, and three in the middle bed; and that our Saviour possessed the upper place thereof. That *John* lay in the same bed seems plain, because he leaned on our Saviours bosom. That *Peter* made the third in that bed, conjecture is made, because he beckened unto *John*, as being next to him, to ask of Christ, who it was that should betray him. That *Judas* was not far off seems probable, not only because he dipped in the same dish, but because he was so near, that our Saviour could hand the sop unto him.

CHAPTER VII

Of the Picture of our Saviour with long hair.

ANOTHER Picture there is of our Saviour described with long hair, according to the custom of the *Jews*, and his description sent by *Lentulus* unto the Senate. Wherein indeed the hand of the Painter is not accusable, but the judgement of the common Spectator; conceiving he observed this fashion of his hair; because he was a *Nazarite*, and confounding a *Nazarite* by vow, with those by birth or education.

The *Nazarite* by vow is declared, *Numb.* 6. And was to refrain three things, drinking of Wine, cutting the hair, and approaching unto the dead; and such a

one was *Sampson*. Now that our Saviour was a *Nazarite* after this kind, we have no reason to determine; for he drank Wine, and was therefore called by the *Pharisees*, a Wine-bibber; he approached also the dead, as when he raised from death *Lazarus*, and the daughter of *Jairus*. CHAP. VII

The other *Nazarite* was a Topical appellation, and appliable unto such as were born in *Nazareth*, a City of *Galilee*, and in the Tribe of *Napthali*. Neither if strictly taken was our Saviour in this sense a *Nazarite*; for he was born in *Bethlehem* in the Tribe of *Judah*; but might receive that name, because he abode in that City; and was not only conceived therein, but there also passed the silent part of his life, after his return from *Ægypt*; as is delivered by *Matthew*, And he came and dwelt in a City called *Nazareth*, that it might be fulfilled which was spoken by the Prophet, He shall be called a *Nazarene*. Both which kinds of *Nazarites*, as they are distinguishable by *Zain*, and *Tsade* in the Hebrew, so in the Greek, by *Alpha* and *Omegu*; for as *Jansenius* observeth, where the votary *Nazarite* is mentioned, it is written, Ναζαραῖος, as *Levit.* 6. and *Lament.* 4. Where it is spoken of our Saviour, we read it, Ναζωρεῖος, as in *Matthew*, *Luke* and *John*; only *Mark* who writ his Gospel at *Rome*, did Latinize, and wrote it Ναζαρηνός. Ians. Concordia Evangelica.

CHAP. VIII

CHAPTER VIII

Of the Picture of *Abraham* sacrificing *Isaac*.

IN the Picture of the Immolation of *Isaac*, or *Abraham* sacrificing his son, *Isaac* is described as a little boy; which notwithstanding is not consentaneous unto the authority of Expositors, or the circumstance of the Text. For therein it is delivered that *Isaac* carried on his back the wood for the sacrifice; which being an holocaust or burnt offering to be consumed unto ashes, we cannot well conceive a burthen for a boy; but such a one unto *Isaac*, as that which it typified was unto Christ, that is, the wood or cross whereon he suffered; which was too heavy a load for his shoulders, and was fain to be relieved therein by *Simon* of *Cyrene*.

Again, He was so far from a boy, that he was a man grown, and at his full stature, if we believe *Josephus*, who placeth him in the last of *Adolescency*, and makes him twenty five years old. And whereas in the Vulgar Translation he is termed *puer*, it must not be strictly apprehended (for that age properly endeth in puberty, and extendeth but unto fourteen) but respectively unto *Abraham*, who was at that time above sixscore. And therefore also herein he was not unlike unto him, who was after led dumb unto the slaughter, and commanded by others, who had legions at command; that is, in meekness and humble submission. For had he resisted, it had not been in the power of his aged parent to have enforced; and many at his years have performed such acts, as few besides at any. *David* was too strong for a Lion and a Bear; *Pompey* had

Men of eminent fame and prowess at 25.

deserved the name of Great; *Alexander* of the same cognomination was *Generalissimo* of *Greece*; and *Anibal* but one year after, succeeded *Asdruball* in that memorable war against the *Romans*. CHAP. VIII

CHAPTER IX

Of the Picture of *Moses* with horns.

IN many pieces, and some of ancient Bibles, *Moses* is described with horns. The same description we find in a silver Medal; that is, upon one side *Moses* horned, and on the reverse the commandment against sculptile Images. Which is conceived to be a coynage of some *Jews*, in derision of Christians, who first began that Pourtract.

The ground of this absurdity, was surely a mistake of the Hebrew Text, in the history of *Moses* when he descended from the Mount; upon the affinity of *Kœren* and *Karan*, that is, an horn, and to shine, which is one quality of horn: The Vulgar Translation conforming unto the former. *Ignorabat quod cornuta esset facies ejus. Qui videbant faciem Mosis esse cornutam.* But the *Chaldee* paraphrase, translated by *Paulus Fagius*, hath otherwise expressed it. *Moses nesciebat quod multus esset splendor gloriæ vultus ejus. Et viderunt filii Israel quod multa esset claritas gloriæ faciei Moses.* The expression of the Septuagint is as large, δεδόξασται ἡ ὄψις τοῦ χρώματος τοῦ προσώπου, *Glorificatus est aspectus cutis, seu coloris facici.* Exod. 34. 29, 35.

And this passage of the Old Testament, is well explained by another of the New; wherein it is delivered, that they could not stedfastly behold the 2 Cor. 3.

CHAP. IX

face of *Moses*, Διὰ τὴν δόξαν τοῦ προσώπου; that is, for the glory of his countenance. And surely the exposition of one Text is best performed by another; men vainly interposing their constructions, where the Scripture decideth the controversie. And therefore some have seemed too active in their expositions, who in the story of *Rahab* the harlot, have given notice that the word also signifieth an Hostess; for in the Epistle to the *Hebrews*, she is plainly termed πόρνη, which signifies not an Hostess, but a pecuniary and prostituting Harlot; a term applied unto *Lais* by the *Greeks*, and distinguished from ἑταιρα, or *amica*, as may appear in the thirteenth of *Athenæus*.

What kind of Harlot she was, read Camar. De vita Eliæ.

And therefore more allowable is the Translation of *Tremellius*, *Quod splendida facta esset cutis faciei ejus*; or as *Estius* hath interpreted it, *facies ejus erat radiosa*, his face was radiant, and dispersing beams like many horns and cones about his head; which is also consonant unto the original signification, and yet observed in the pieces of our Saviour, and the Virgin *Mary*, who are commonly drawn with scintillations, or radient Halo's about their head; which after the *French* expression are usually termed, the Glory.

Now if besides this occasional mistake, any man shall contend a propriety in this picture, and that no injury is done unto Truth by this description, because an horn is the Hieroglyphick of authority, power and dignity, and in this Metaphor is often used in Scripture; the piece I confess in this acception is harmless and agreeable unto *Moses*: and under such emblematical constructions, we find that *Alexander* the Great, and *Attila* King of *Hunnes*, in ancient Medals are described with horns. But if from the common mistake, or any solary consideration we persist in this description, we

vilify the mystery of the irradiation, and authorize a dangerous piece conformable unto that of *Jupiter Hammon*; which was the Sun, and therefore described with horns; as is delivered by *Macrobius*; *Hammonem quem Deum solem occidentem Lybies existimant, arietinis cornibus fingunt, quibus id animal valet, sicut radiis sol.* We herein also imitate the Picture of *Pan*, and *Pagan* emblem of Nature. And if (as *Macrobius* and very good Authors concede) *Bacchus*, (who is also described with horns) be the same Deity with the Sun; and if (as *Vossius* well contendeth) *Moses* and *Bacchus* were the same person; their descriptions must be relative, or the Tauricornous picture of the one, perhaps the same with the other.

Moses and Bacchus supposed to be the same person, De origine Idolatriæ.

CHAPTER X

Of the Scutcheons of the Tribes of Israel.

WE will not pass over the Scutcheons of the Tribes of *Israel*, as they are usually described in the Maps of *Canaan* and several other pieces; generally conceived to be the proper coats, and distinctive badges of their several Tribes. So *Reuben* is conceived to bear three Bars wave, *Judah* a Lyon Rampant, *Dan* a Serpent nowed, *Simeon* a sword inpale the point erected, etc. The ground whereof is the last Benediction of *Jacob*, wherein he respectively draweth comparisons from things here represented.

Gen. 49.

Now herein although we allow a considerable measure of truth, yet whether as they are usually described, these were the proper cognizances, and coat-arms of

CHAP. X

the Tribes; whether in this manner applyed, and upon the grounds presumed, material doubts remain.

For first, They are not strictly made out, from the Prophetical blessing of *Jacob*; for *Simeon* and *Levi* have distinct coats, that is, a Sword, and the two Tables, yet are they by *Jacob* included in one Prophesie, *Simeon* and *Levi* are brethren, Instruments of cruelties are in their habitations. So *Joseph* beareth an Ox, whereof notwithstanding there is no mention in this Prophesie; for therein it is said *Joseph* is a fruitful bough, even a fruitful bough by a well; by which repitition are intimated the two Tribes descending from him, *Ephraim* and *Manasses*; whereof notwithstanding *Ephraim* only beareth an Ox: True it is, that many years after in the benediction of *Moses*, it is said of *Joseph*, His glory is like the firstlings of his Bullock: and so we may concede, what *Vossius* learnedly declareth, that the *Ægyptians* represented *Joseph*, in the Symbole of an Ox; for thereby was best implied the dream of *Pharoah*, which he interpreted, the benefit by Agriculture, and provident provision of corn which he performed; and therefore did *Serapis* bear a bushel upon his head.

Deut. 33.

Again, If we take these two benedictions together, the resemblances are not appropriate, and *Moses* therein conforms not unto *Jacob*; for that which in the Prophesie of *Jacob* is appropriated unto one, is in the blessing of *Moses* made common unto others. So whereas *Judah* is compared unto a Lion by *Jacob*, *Judah* is a Lions whelp, the same is applied unto *Dan* by *Moses*, *Dan* is a Lions whelp, he shall leap from *Bashan*, and also unto *Gad*; he dwelleth as a Lion.

Thirdly, If a lion were the proper coat of *Judah*, yet were it not probably a Lion Rampant, as it is

commonly described, but rather couchant or dormant, as some *Heralds* and *Rabbins* do determine; according to the letter of the Text, *Recumbens dormisti ut Leo*, He couched as a Lion, and as a young Lion, who shall rouse him? CHAP. X

Lastly, when it is said, Every man of the Children of *Israel* shall pitch by his own standard with the Ensign of their fathers house; upon enquiry what these standards and ensigns were there is no small incertainty; and men conform not unto the Prophesie of *Jacob*. Christian expositors are fain herein to rely upon the *Rabbins*, who notwithstanding are various in their traditions, and confirm not these common descriptions. For as for inferiour ensigns, either of particular bands or houses, they determine nothing at all; and of the four principal or Legionary standards, that is, of *Judah*, *Reuben*, *Ephraim*, and *Dan* (under every one whereof marched three Tribes) they explain them very variously. *Jonathan* who compiled the Thargum conceives the colours of these banners to answer the precious stones in the breast-plate, and upon which the names of the Tribes were engraven. So the standard for the Camp of *Judah* was of three colours, according unto the stones, Chalcedony, Saphir and Sardonix; and therein were expressed the names of the three Tribes, *Judah*, *Isachar*, and *Zabulon*, and in the middest thereof was written, Rise up Lord, and let thy enemies be scattered, and let them that hate thee flee before thee; in it was also the pourtrait of a Lion. The standard of *Reuben* was also of three colours, Sardine, Topaz, and Amethyst; therein were expressed the names of *Reuben*, *Simeon*, and *Gad*, in the middest was written, Hear, O *Israel*, The Lord our God, the Lord is one: Therein was also the pourtraiture of a

Num. 2.

The like also P. Fagius *upon the Thargum or* Chaldie *Paraphrast of* Onkelus. Num. 1.

Num. 10.

Deut. 6.

CHAP. X

Hart. But *Abenezra* and others, beside the colours of the field, do set down other charges, in *Reubens* the form of a man or mandrake, in that of *Judah* a Lion, in *Ephraims* an Ox, in *Dan's* the figure of an Eagle.

And thus indeed the four figures in the banners of the principal squadrons of *Israel* are answerable unto the Cherubins in the vision of *Ezekiel*; every one carrying the form of all these. As for the likeness of their faces, they four had the likeness of the face of a Man, and the face of a Lion on the right side, and they four had the face of an Ox on the left side, they four had also the face of an Eagle. And conformable hereunto the pictures of the Evangelists (whose Gospels are the Christian banners) are set forth with the addition of a man or Angel, an Ox, a Lion, and a Eagle. And these symbolically represent the office of Angels, and Ministers of Gods Will; in whom is required understanding as in a man, courage and vivacity as in the Lion, service and ministerial officiousness, as in the Ox, expedition or celerity of execution, as in the Eagle.

Ezek. 1.

The common Pictures of the 4 Evangelists explicated.

From hence therefore we may observe that these descriptions, the most authentick of any, are neither agreeable unto one another, nor unto the Scutcheons in question. For though they agree in *Ephraim* and *Judah*, that is, the Ox and the Lion, yet do they differ in those of *Dan*, and *Reuben*, as far as an Eagle is different from a Serpent, and the figure of a Man, Hart, or Mandrake, from three Bars wave. Wherein notwithstanding we rather declare the incertainty of Arms in this particular, than any way question their antiquity; for hereof more ancient examples there are, than the Scutcheons of the Tribes, if *Osyris*, *Misraim* or *Jupiter* the Just, were the Son of *Cham*; for of his

The Antiquity of bearing Scutcheons.

two Sons, as *Diodorus* delivereth, the one for his Device gave a Dog, the other a Wolf. And, beside the shield of *Achilles*, and many ancient *Greeks*: if we receive the conjecture of *Vossius*, that the Crow upon *Corvinus* his head, was but the figure of that Animal upon his helmet, it is an example of Antiquity among the *Romans*. CHAP. X

But more widely must we walk, if we follow the doctrine of the *Cabalists*, who in each of the four banners inscribe a letter of the Tetragrammaton, or quadriliteral name of God: and mysterizing their ensigns, do make the particular ones of the twelve Tribes, accommodable unto the twelve signs in the Zodiack, and twelve moneths in the year: but the Tetrarchical or general banners, of *Judah*, *Reuben*, *Ephraim*, and *Dan*, unto the signs of Aries, Cancer, Libra and Capricornus: that is, the four cardinal parts of the Zodiack, and seasons of the year. *Ricius*[1] de cœlesti Agricultura, lib. 4.

CHAPTER XI

Of the Pictures of the *Sibyls*.

THE Pictures of the *Sibyls* are very common, and for their Prophesies of Christ in high esteem with Christians; described commonly with youthful faces, and in a defined number. Common pieces making twelve, and many precisely ten; observing therein the account of *Varro*, that is, *Sibylla*, *Delphica*, *Erythræa*, *Samia*, *Cumana*, *Cumæa*, or *Cimmeria*, *Hellespontiaca*, *Lybica*, *Phrygia*, *Tiburtina*, *Persica*. In which enumeration I perceive learned

[1] *Recius*, 1650, 1658, 1669, 1672, 1686.

CHAP. XI

men are not satisfied, and many conclude an irreconcilable incertainty; some making more, others fewer, and not this certain number. For *Suidas*, though he affirm that in divers ages there were ten, yet the same denomination he affordeth unto more; *Boysardus* in his Tract of Divination hath set forth the Icons of these Ten, yet addeth two others, *Epirotica*, and *Ægyptia*; and some affirm that Prophesying women were generally named *Sibyls*.

Others make them fewer: *Martianus Capella* two; *Pliny* and *Solinus* three; *Ælian* four; and *Salmasius* in effect but seven. For discoursing hereof in his *Plinian* Exercitations, he thus determineth; *Ridere licet hodiernos Pictores, qui tabulas proponunt Cumanæ, Cumeæ, et Erythrææ, quasi trium diversarum Sibyllarum; cum una eademque fuerit Cumana, Cumæa, et Erythræa, ex plurium et doctissimorum Authorum sententia.* *Boysardus* gives us leave to opinion there was no more than one; for so doth he conclude, *In tanta Scriptorum varietate liberum relinquimus Lectori credere, an una et eadem in diversis regionibus peregrinata, cognomen sortita sit ab iis locis ubi oracula reddidisse comperitur, an plures extiterint*: And therefore not discovering a resolution of their number from pens of the best Writers, we have no reason to determine the same from the hand and pencil of Painters.

As touching their age, that they are generally described as young women, History will not allow; for the Sibyl whereof *Virgil* speaketh is termed by him *longæva sacerdos*, and *Servius* in his Comment amplifieth the same. The other that sold the books unto *Tarquin*, and whose History is plainer than any, by *Livie* and *Gellius* is termed *Anus*; that is, properly no

Anus, quasi Ἄνους, sine mente.

woman of ordinary age, but full of years, and in the dayes of dotage, according to the Etymology of *Festus*; and consonant unto the History; wherein it is said, that *Tarquin* thought she doted with old age. Which duly perpended, the *Licentia pictoria* is very large; with the same reason they may delineate old *Nestor* like *Adonis*, *Hecuba* with *Helens* face, and Time with *Absolons* head. But this absurdity that eminent Artist *Michael Angelo* hath avoided, in the Pictures of the *Cumean* and *Persian* Sibyls, as they stand described from the printed sculptures of *Adam Mantuanus*.

CHAPTER XII

Of the Picture describing the death of *Cleopatra*.

THE Picture concerning the death of *Cleopatra* with two Asps or venemous Serpents unto her arms, or breasts, or both, requires consideration: for therein (beside that this variety is not excusable) the thing it self is questionable; nor is it indisputably certain what manner of death she died. *Plutarch* in the life of *Antony* plainly delivereth, that no man knew the manner of her death; for some affirmed she perished by poison, which she alwayes carried in a little hollow comb, and wore it in her hair. Beside, there were never any Asps discovered in the place of her death, although two of her maids perished also with her; only it was said, two small and almost insensible pricks were found upon her arm; which was all the ground that *Cæsar* had to presume

CHAP. XII

the manner of her death. *Galen* who was contemporary unto *Plutarch*, delivereth two wayes of her death: that she killed her self by the bite of an Asp, or bit an hole in her arm, and poured poison therein. *Strabo* that lived before them both hath also two opinions; that she died by the bite of an Asp, or else a poisonous ointment.

We might question the length of the Asps, which are sometimes described exceeding short; whereas the Chersæa or land-Asp which most conceive she used, is above four cubits long. Their number is not unquestionable; for whereas there are generally two described, *Augustus* (as *Plutarch* relateth) did carry in his triumph the Image of *Cleopatra* but with one Asp under her arm. As for the two pricks, or little spots in her arm, they infer not their plurality: for like the Viper, the Asp hath two teeth; whereby it left this impression, or double puncture behind it.

And lastly, We might question the place; for some apply them unto her breast, which notwithstanding will not consist with the History; and *Petrus Victorius* hath well observed the same. But herein the mistake was easie; it being the custom in capital malefactors to apply them unto the breast, as the Author *De Theriaca ad Pisonem*, an eye witness hereof in *Alexandria*, where *Cleopatra* died, determineth: I beheld, saith he, in *Alexandria*, how suddenly these Serpents bereave a man of life; for when any one is condemned to this kind of death, if they intend to use him favourably, that is, to dispatch him suddenly, they fasten an Asp unto his breast; and bidding him walk about, he presently perisheth thereby.

CHAP. XIII

CHAPTER XIII

Of the Pictures of the Nine Worthies.

THE Pictures of the nine Worthies are not unquestionable, and to critical spectators may seem to contain sundry improprieties. Some will enquire why *Alexander* the Great is described upon an Elephant: for, we do not find he used that animal in his armies, much less in his own person; but his horse is famous in History, and its name alive to this day. Beside, he fought but one remarkable battel, wherein there were any Elephants, and that was with *Porus* King of *India*; in which notwithstanding, as *Curtius*, *Arrianus*, and *Plutarch* report, he was on Horseback himself. And if because he fought against Elephants, he is with propriety set upon their backs; with no less or greater reason is the same description agreeable unto *Judas Maccabeus*, as may be observed from the history of the *Maccabees*; and also unto *Julius Cæsar*, whose triumph was honoured with captive Elephants, as may be observed in the order thereof, set forth by *Jacobus Laurus*. And if also we should admit this description upon an Elephant, yet were not the manner thereof unquestionable, that is, in his ruling the beast alone; for beside the Champion upon their back, there was also a guide or ruler, which sat more forward to command or guide the beast. Thus did King *Porus* ride when he was overthrown by *Alexander*; and thus are also the towred Elephants described, *Maccab.* 2. 6. Upon the beasts there were strong towers of wood, which covered every one of them, and were girt fast unto them by devices: there

In splendore urbis Antiquæ.

CHAP. XIII

were also upon every one of them thirty two strong men, beside the *Indian* that ruled them.

Others will demand, not only why *Alexander* upon an Elephant, but *Hector* upon an Horse: whereas his manner of fighting, or presenting himself in battel, was in a Chariot, as did the other noble *Trojans*, who as *Pliny* affirmeth were the first inventers thereof. The same way of fight is testified by *Diodorus*, and thus delivered by Sir *Walter Rawleigh*. Of the vulgar little reckoning was made, for they fought all on foot, slightly armed, and commonly followed the success of their Captains; who rode not upon horses, but in Chariots drawn by two or three Horses. And this was also the ancient way of fight among the *Britains*, as is delivered by *Diodorus*, *Cæsar*, and *Tacitus*; and there want not some who have taken advantage hereof, and made it one argument of their original from *Troy*.

Lastly, By any man versed in Antiquity, the question can hardly be avoided, why the Horses of these Worthies, especially of *Cæsar*, are described with the furniture of great saddles, and stirrops; for saddles largely taken, though some defence there may be, yet that they had not the use of stirrops, seemeth of lesser doubt; as *Pancirollus* hath observed, as *Polydore Virgil*, and *Petrus Victorius* have confirmed, expresly discoursing hereon; as is observable from *Pliny*, and cannot escape our eyes in the ancient monuments, medals and Triumphant arches of the *Romans*. Nor is there any ancient classical word in Latine to express them. For *Staphia*, *Stapes* or *Stapeda* is not to be found in Authors of this Antiquity. And divers words which may be urged of this signification, are either later, or signified not

De inventione rerum, variæ Lectiones.

The use of stirrops not ancient.

thus much in the time of *Cæsar*. And therefore as *Lipsius* observeth, lest a thing of common use should want a common word, *Franciscus Philelphus* named them *Stapedas*, and *Bodinus Subicus* Pedaneos. And whereas the name might promise some Antiquity, because among the three small bones in the Auditory Organ, by Physitians termed *Incus*, *Malleus* and *stapes*, one thereof from some resemblance doth bear this name; these bones were not observed, much less named by *Hippocrates*, *Galen*, or any ancient Physitian. But as *Laurentius* observeth, concerning the invention of the stapes or stirrop bone, there is some contention between *Columbus* and *Ingrassias*; the one of *Sicilia*, the other of *Cremona*, and both within the compass of this Century. CHAP. XIII

The same is also deduceable from very approved Authors: *Polybius* speaking of the way which *Anibal* marched into *Italy*, useth the word βεβημάτισται, that is, saith *Petrus Victorius*, it was stored with devices for men to get upon their horses, which ascents were termed *Bemata*, and in the life of *Caius Gracchus*, *Plutarch* expresseth as much. For endevouring to ingratiate himself with the people, besides the placing of stones at every miles end, he made at nearer distances certain elevated places, and Scalary ascents, that by the help thereof they might with better ease ascend or mount their Horses. Now if we demand how Cavaliers then destitute of stirrops did usually mount their Horses; as *Lipsius* informeth the unable and softer sort of men had their ἀναβολεῖς, or Stratores, which helped them up on horse back, as in the practice of *Crassus* in *Plutarch*, and *Caracalla* in *Spartianus*, and the later example of *Valentinianus*, who because his horse rised before that he could not be setled on

CHAP. XIII

his back, cut off the right hand of his Strator. But how the active and hardy persons mounted, *Vegetius* resolves us, that they used to vault or leap up, and therefore they had wooden horses in their houses and abroad: that thereby young men might enable themselves in this action: wherein by instruction and practice they grew so perfect, that they could vault up on the right or left, and that with their sword in hand, according to that of *Virgil*

De re Milit.

> *Poscit equos atque arma simul, saltuque superbus*
> *Emicat.* And again:
> *Infrænant alii currus et corpora saltu*
> *Injiciunt in equos.*

So *Julius Pollux* adviseth to teach horses to incline, dimit, and bow down their bodies, that their riders may with better ease ascend them. And thus may it more causally be made out, what *Hippocrates* affirmeth of the *Scythians*, that using continual riding, they were generally molested with the Sciatica or hip-gout. Or what *Suetonius* delivereth of *Germanicus*, that he had slender legs, but encreased them by riding after meals; that is, the humours descending upon their pendulosity, they having no support or suppedaneous stability.

Now if any shall say that these are petty errors and minor lapses, not considerably injurious unto truth, yet is it neither reasonable nor fair to contemn inferiour falsities; but rather as between falshood and truth there is no medium, so should they be maintained in their distances: nor the contagion of the one, approach the sincerity of the other.

CHAPTER XIV

Of the Picture of *Jephthah* sacryficing his daughter.

THE hand of the Painter confidently setteth forth the Picture of *Jephthah* in the posture of *Abraham*, sacrificing his only daughter: Thus is it commonly received, and hath had the attest of many worthy Writers. Notwithstanding upon enquiry we find the matter doubtful, and many upon probable grounds to have been of another opinion: conceiving in this oblation not a natural but a civil kind of death, and a separation only unto the Lord. For that he pursued not his vow unto a literal oblation, there want not arguments both from the Text and reason.

That Jephthah did not kill his daughter. Judg. 11. 39.

For first, It is evident that she deplored her Virginity, and not her death; Let me go up and down the mountains, and bewail my Virginity, I and my fellows.

Secondly, When it is said, that *Jephthah* did unto her according unto his vow, it is immediately subjoyned, *Et non cognovit virum*, and she knew no man; which as immediate in words, was probably most near in sense unto the vow.

Thirdly, It is said in the Text, that the daughters of *Israel* went yearly to talk with the daughter of *Jephthah* four dayes in the year; which had she been sacrificed, they could not have done: For whereas the word is sometime translated to lament, yet doth it also signifie to talk or have conference with one, and by *Tremellius*, who was well able to Judge of the Original, it is in this sense translated: *Ibant filii*

CHAP. XIV

Israelitarum, ad confabulandum cum filia Jephthaci, quatuor diebus quotannis: And so it is also set down in the marginal notes of our Translation. And from this annual concourse of the daughters of *Israel*, it is not improbable in future Ages, the daughter of *Jephthah* came to be worshipped as a Deity; and had by the *Samaritans* an annual festivity observed unto her honour, as *Epiphanius* hath left recorded in the Heresie of the *Melchidecians*.

It is also repugnant unto reason; for the offering of mankind was against the Law of God, who so abhorred humane sacrifice, that he omitted not the oblation of unclean beasts, and confined his Altars but unto few kinds of Animals, the Ox, the Goat, the Sheep, the Pigeon and its kinds: In the cleansing of the Leper, there is I confess, mention made of the Sparrow; but great dispute may be made whether it be properly rendered. And therefore the Scripture with indignation oft-times makes mention of humane sacrifice among the *Gentiles*; whose oblations scarce made scruple of any Animal, sacrificing not only Man, but Horses, Lions, Ægles; and though they come not into holocausts, yet do we read the *Syrians* did make oblations of fishes unto the goddess *Derceto*. It being therefore a sacrifice so abominable unto God, although he had pursued it, it is not probable the Priests and Wisdom of *Israel* would have permitted it; and that not only in regard of the subject or sacrifice it self, but also the sacrificator, which the Picture makes to be *Jephthah*; who was neither Priest, nor capable of that Office: for he was a *Gileadite*, and as the Text affirmeth, the son also of an harlot. And how hardly the Priesthood would endure encroachment upon their function, a notable example there is in the story of *Ozias*.

Secondly, The offering up of his daughter was not only unlawful, and entrenched upon his Religion, but had been a course that had much condemned his discretion; that is, to have punished himself in the strictest observance of his vow, when as the Law of God had allowed an evasion; that is, by way of commutation or redemption, according as is determined, *Levit.* 27. Whereby if she were between the age of five and twenty, she was to be estimated but at ten shekels, and if between twenty and sixty, not above thirty. A sum that could never discourage an indulgent Parent; it being but the value of servant slain; the inconsiderable Salary of *Judas*; and will make no greater noise than three pound fifteen shillings with us. And therefore their conceit is not to be exploded, who say that from the story of *Jephthah* sacrificing his own daughter, might spring the fable of *Agamemnon*, delivering unto sacrifice his daughter *Iphigenia*, who was also contemporary unto *Jephthah*: wherein to answer the ground that hinted it, *Iphigenia* was not sacrificed her self, but redeemed with an Hart, which *Diana* accepted for her. CHAP. XIV

Lastly, Although his vow run generally for the words, Whatsoever shall come forth, etc. Yet might it be restrained in the sense, for whatsoever was sacrificable, and justly subject to lawful immolation: and so would not have sacrificed either Horse or Dog, if they had come out upon him. Nor was he obliged by oath unto a strict observation of that which promissorily was unlawful; or could he be qualified by vow to commit a fact which naturally was abominable. Which doctrine had *Herod* understood, it might have saved *John Baptists* head; when he promised by oath to give unto *Herodias* whatsoever she would ask; that

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is, if it were in the compass of things, which he could lawfully grant. For his oath made not that lawful which was illegal before: and if it were unjust to murther *John*, the supervenient Oath did not extenuate the fact, or oblige the Juror unto it.

Now the ground at least which much promoted the opinion, might be the dubious words of the text, which contain the sense of his vow; most men adhering unto their common and obvious acception. Whatsoever shall come forth of the doors of my house shall surely be the Lords, and I will offer it up for a burnt offering. Now whereas it is said, *Erit Jehovæ, et offeram illud holocaustum*, the word signifying both *et* and *aut*, it may be taken disjunctively; *aut offeram*, that is, it shall either be the Lords by separation, or else, an holocaust by common oblation; even as our marginal translation advertiseth; and as *Tremellius* rendreth it, *Erit inquam Jehovæ, aut offeram illud holocaustum*: and for the vulgar translation, it useth often *et*, where *aut* must be presumed, as *Exod.* 21. *Si quis percusserit patrem et matrem*, that is, not both, but either. There being therefore two waies to dispose of her, either to separate her unto the Lord, or offer her as a sacrifice, it is of no necessity the later should be necessary; and surely less derogatory unto the sacred text and history of the people of God, must be the former.

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CHAPTER XV

Of the Picture of *John* the Baptist.

THE Picture of *John* the Baptist, in a Camels skin is very questionable, and many I perceive have condemned it. The ground or occasion of this description are the words of the holy Scripture, especially of *Matthew* and *Mark*, for *Luke* and *John* are silent herein; by them it is delivered, his garment was of Camels hair, and had a leather girdle about his loins. Now here it seems the Camels hair is taken by Painters for the skin or pelt with the hair upon it. But this Exposition will not so well consist with the strict acceptation of the words; for *Mark* 1. It is said, he was, ἐνδεδυμένος τρίχας καμήλου, and *Matthew* 3. εἶχε τὸ ἔνδυμα ἀπὸ τριχῶν καμήλου, that is, as the vulgar translation, that of *Beza*, that of *Sixtus Quintus*, and *Clement* the eight hath rendred it, *vestimentum habebat è pilis camelinis*; which is as ours translateth it, a garment of Camels hair; that is, made of some texture of that hair, a course garment; a cilicious or sackcloth habit; sutable to the austerity of his life; the severity of his Doctrine, Repentance; and the place thereof, the wilderness, his food and diet, locusts and wild hony. Agreeable unto the example of *Elias*, who is said to be *vir pilosus*, that is, as *Tremellius* interprets, *Veste villosa*[1] *cinctus*, answerable unto the habit of the ancient Prophets, according to that of *Zachary*. In that day the Prophets shall be ashamed, neither shall they wear a rough garment to deceive; and sutable to the Cilicious and hairy

2 Kings 3. 18.

Zach. 13.

[1] *villoso*, 1646, 1650, 1658, 1669, 1672.

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Vests of the strictest Orders of Fryers, who derive the institution of their Monastick life from the example of *John* and *Elias*.

As for the wearing of skins, where that is properly intended, the expression of the Scripture is plain; so it is said, *Heb.* 11. They wandered about ἐν αἰγείοις δέρμασιν, that is, in Goats skins; and so it is said of our first Parents, *Gen.* 3. That God made them χιτῶνας δερματίνους, *Vestes pelliceas*, or coats of skins; which though a natural habit unto all, before the invention of Texture, was something more unto *Adam*, who had newly learned to die; for unto him a garment from the dead, was but a dictate of death, and an habit of mortality.

Now if any man will say this habit of *John* was neither of Camels skin, nor any course Texture of its hair, but rather some finer Weave of Camelot, Grograin or the like, in as much as these stuffs are supposed to be made of the hair of that Animal, or because that *Ælian* affirmeth, that Camels hair of *Persia*, is as fine as *Milesian* wool, wherewith the great ones of that place were cloathed; they have discovered an habit, not only unsutable unto his leathern cincture, and the courseness of his life; but not consistent with the words of our Saviour, when reasoning with the people concerning *John*, he saith, What went you out into the wilderness to see? a man clothed in soft raiment? Behold, they that wear soft raiment, are in Kings houses.

CHAPTER XVI

Of the Picture of St. *Christopher.*

THE Picture of St. *Christopher*, that is, a man of a Giantlike stature, bearing upon his shoulders our Saviour Christ, and with a staff in his hand, wading thorow the water, is known unto Children, common over all *Europe*, not only as a sign unto houses, but is described in many Churches, and stands *Colossus* like in the entrance of *Nostre Dame* in *Paris.*

Now from hence, common eyes conceive an history sutable unto this description, that he carried our Saviour in his Minority over some river or water: which notwithstanding we cannot at all make out. For we read not thus much in any good Author, nor of any remarkable *Christopher*, before the reign of *Decius*: who lived 250 years after Christ. This man indeed according unto History suffered as a Martyr in the second year of that Emperour, and in the *Roman* Calendar takes up the 21 of *July.*

The ground that begat or promoted this opinion, was, first the fabulous adjections of succeeding ages unto the veritable acts of this Martyr, who in the most probable accounts was remarkable for his staff, and a man of a goodly stature.

The second might be a mistake or misapprehension of the Picture, most men conceiving that an History which was contrived at first but as an Emblem or Symbolical fancy: as from the Annotations of *Baronius* upon the *Roman* Martyrologie, *Lipellous* in the

CHAP. XVI

life of St. *Christopher* hath observed in these words; *Acta S. Christopheri à multis depravata inveniuntur: quod quidem non aliunde originem sumpsisse certum est, quam quod symbolicas figuras imperiti ad veritatem successu temporis transtulerint: itaque cuncta illa de Sancto Christophero pingi consueta, symbola potius, quam historiæ alicujus existimandum est esse expressam imaginem*; that is, The Acts of St. *Christopher* are depraved by many: which surely began from no other ground, then, that in process of time, unskilful men translated symbolical figures unto real verities: and therefore what is usually described in the Picture of St. *Christopher*, is rather to be received as an Emblem, or Symbolical description, then any real History. Now what Emblem this was, or what its signification, conjectures are many; *Pierius* hath set down one, that is, of the Disciple of Christ; for he that will carry Christ upon his shoulders, must rely upon the staff of his direction, whereon if he firmeth himself, he may be able to overcome the billows of resistance, and in the vertue of this staff, like that of *Jacob*, pass over the waters of *Jordan*. Or otherwise thus; He that will submit shoulders unto Christ, shall by the concurrence of his power encrease into the strength of a Giant; and being supported by the staff of his holy Spirit, shall not be overwhelmed by the waves of the world, but wade through all resistance.

Lib. De vitis Sanctorum.

Add also the mystical reasons of this pourtract alleadged by *Vida* and *Xerisanus*: and the recorded story of *Christopher*, that before his Martyrdom he requested of God, that where ever his body were, the places should be freed from pestilence and mischiefs, from infection. And therefore his picture or pourtract, was usually placed in publick wayes, and at the

Anton. Castellionæi antiquitates Mediolanenses.

entrance of Towns and Churches, according to the received Distich CHAP. XVI

Christophorum videas, postea tutus eris.

CHAPTER XVII

Of the Picture of St. *George.*

THE Picture of St. *George* killing the Dragon, and, as most ancient draughts do run, with the daughter of a King standing by, is famous amongst Christians. And upon this description dependeth a solemn story, how by this atchievement he redeemed a Kings daughter: which is more especially believed by the *English*, whose Protector he is: and in which form and history, according to his description in the *English* Colledge at *Rome*, he is set forth in the Icons or Cuts of Martyrs by *Cevalerius*: and all this according to the *Historia Lombardica*, or golden legend of *Jacobus de Voragine*. Now of what authority soever this piece be amongst us, it is I perceive received with different beliefs: for some believe the person and the story; some the person, but not the story; and others deny both.

That such a person there was, we shall not contend: for besides others, Dr. *Heilin* hath clearly asserted it in his History of St. *George*. The indistinction of many in the community of name, or the misapplication of the acts of one unto another, hath made some doubt thereof. For of this name we meet with more then one in History, and no less then two conceived of *Cappadocia*. The one an *Arrian*, who was slain by the *Alexandrians* in the time of *Julian*; the other a valiant

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Souldier and Christian Martyr, beheaded in the reign of *Dioclesian*. This is the *George* conceived in this Picture, who hath his day in the *Roman* Calender, on whom so many fables are delivered, whose story is set forth by *Metaphrastes*, and his miracles by *Turonensis*.

As for the story depending hereon, some conceive as lightly thereof, as of that of *Persius* and *Andromeda*; conjecturing the one to be the father of the other; and some too highly assert it. Others with better moderation, do either entertain the same as a fabulous addition unto the true and authentick story of St. *George*; or else conceive the literal acception to be a misconstruction of the symbolical expression; apprehending a veritable History, in an Emblem or piece of Christian Poesie. And this Emblematical construction hath been received by men not forward to extenuate the acts of Saints: as from *Baronius*, *Lipellous* the *Carthusian* hath delivered in the life of St. *George*; *Picturam illam St.* Georgii *quâ effingitur eques armatus, qui hastæ cuspide hostem interficit, juxta quam etiam virgo posita manus supplices tendens ejus explorat auxilium, Symboli potius quam historiæ alicujus censenda expressa imago. Consuevit quidem ut equestris militiæ miles equestri imagine referri*: that is, The Picture of St. *George*, wherein he is described like a Curassier or horseman compleatly armed, etc. Is rather a symbolical image, then any proper figure.

Now in the Picture of this Saint and Souldier, might be implied the Christian Souldier and true Champion of Christ. A horseman armed *Cap a pe*, intimating the *Panoplia* or compleat armour of a Christian; combating with the Dragon, that is, with the Devil; in defence of the Kings daughter, that is, the Church of God. And therefore although the history be not

made out, it doth not disparage the Knights and Noble order of St. *George*: whose cognisance is honourable in the Emblem of the Souldier of Christ, and is a worthy memorial to conform unto its mystery. Nor, were there no such person at all, had they more reason to be ashamed, then the Noble order of *Burgundy*, and Knights of the Golden Fleece; whose badge is a confessed fable. CHAP. XVII

CHAPTER XVIII

Of the Picture of *Jerom.*

THE Picture of *Jerom* usually described at his study, with a Clock hanging by, is not to be omitted; for though the meaning be allowable, and probable it is that industrious Father did not let slip his time without account; yet must not perhaps that Clock be set down to have been his measure thereof. For Clocks or Automatous organs, whereby we now distinguish of time, have found no mention in any ancient Writers but are of late invention, as *Pancirollus* observeth. And *Polydore Virgil* discoursing of new inventions whereof the authors are not known, makes instance in Clocks and Guns. Now *Jerom* is no late Writer, but one of the ancient Fathers, and lived in the fourth Century, in the reign of *Theodosius* the first.

Clocks no very ancient invention.

It is not to be denied that before the daies of *Jerom* there were Horologies, and several accounts of time; for they measured the hours not only by drops of water in glasses called Clepsydræ, but also by sand in glasses called Clepsammia. There were also from great antiquity, Scioterical or Sun Dials, by the shadow of

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a stile or gnomon denoting the hours of the day: an invention ascribed unto *Anaximines* by *Pliny*. Hereof a memorable one there was in *Campus Martius*, from an obelisk erected, and golden figures placed horozontally about it; which was brought out of *Egypt* by *Augustus*, and described by *Jacobus Laurus*. And another of great antiquity we meet with in the story of *Ezechias*; for so it is delivered in *King*. 2. 20. That the Lord brought the shadow backward ten degrees by which it had gone down in the dial of Ahaz. That is, say some, ten degrees, not lines; for the hours were denoted by certain divisions or steps in the Dial, which others distinguished by lines, according to that of *Persius*

A peculiar description and particular construction hereof out of R. Chomer, *is set down*, Curios de Caffarel. chap. 9.

Stertimus indomitum quod despumare Falernum
Sufficiat, quintâ dum linea tangitur umbra.

That is, the line next the Meridian, or within an hour of noon.

Doctrine of circular motions.

Of later years there succeeded new inventions, and horologies composed by Trochilick or the artifice of wheels; whereof some are kept in motion by weight, others perform without it. Now as one age instructs another, and time that brings all things to ruin, perfects also every thing; so are these indeed of more general and ready use then any that went before them. By the Water-glasses the account was not regular: for from attenuation and condensation, whereby that Element is altered, the hours were shorter in hot weather then in cold, and in Summer then in Winter. As for Scioterical Dials, whether of the Sun or Moon, they are only of use in the actual radiation of those Luminaries, and are of little advantage unto those inhabitants, which for many months enjoy not the Lustre of the Sun.

It is I confess no easie wonder how the horometry of Antiquity discovered not this Artifice, how *Architas*

that contrived the moving Dove, or rather the *Helicosophie* of *Archimedes*, fell not upon this way. Surely as in many things, so in this particular, the present age hath far surpassed Antiquity; whose ingenuity hath been so bold not only to proceed below the account of minutes, but to attempt perpetual motions, and engines whose revolutions (could their substance answer the design) might out-last the exemplary mobility, and out measure time it self. For such a one is that mentioned by *John Dee*, whose words are these in his learned Preface unto *Euclide*: By Wheels strange works and incredible are done: A wondrous example was seen in my time in a certain Instrument, which by the Inventer and Artificer was sold for twenty talents of gold; and then by chance had received some injury, and one *Janellus* of *Cremona* did mend the same, and presented it unto the Emperor *Charles* the fift. *Jeronimus Cardanus* can be my witness, that therein was one Wheel that moved at such a rate, that in seven thousand years his own period should be finished; a thing almost incredible, but how far I keep within my bounds, many men yet alive can tell. CHAP. XVIII

CHAPTER XIX

Of the Pictures of *Mermaids*, *Unicorns*, and some others.

FEW eyes have escaped the Picture of *Mermaids*; that is, according to *Horace* his Monster, with womans head above, and fishy extremity below; and these are conceived to answer the shape of the ancient *Syrens* that attempted upon *Ulysses*. Which

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notwithstanding were of another description, containing no fishy composure, but made up of Man and Bird; the humane mediety variously placed not only above, but below; according unto *Ælian*, *Suidas*, *Servius*, *Boccatius*, and *Aldrovandus*, who hath referred their description unto the story of fabulous Birds; according to the description of *Ovid*, and the account thereof in *Hyginus*, that they were the daughters of *Melpomene*, and metamorphosed into the shape of man and bird by *Ceres*.

Dagon *the Idol, of what form.* 1 Sam. 5.

And therefore these pieces so common among us, do rather derive their original, or are indeed the very description of *Dagon*; which was made with human figure above, and fishy shape below; whose stump, or as *Tremellius* and our margin renders it, whose fishy part only remained, when the hands and upper part fell before the Ark. Of the shape of *Artergates*, or *Derceto* with the *Phœnitians*; in whose fishy and feminine mixture, as some conceive, were implied the Moon and the Sea, or the Deity of the waters; and therefore, in their sacrifices, they made oblations of fishes. From whence were probably occasioned the Pictures of *Nereides* and *Tritons* among the *Grecians*, and such as we read in *Macrobius*, to have been placed on the top of the Temple of *Saturn*.

We are unwilling to question the Royal Supporters of *England*, that is, the approved descriptions of the Lion and the Unicorn. Although, if in the Lion, the position of the pizel be proper, and that the natural situation; it will be hard to make out their retrocopulation, or their coupling and pissing backward, according to the determination of *Aristotle*; All that urine backward do copulate πυγηδὸν *clunatim*, or aversly, as Lions, Hares, Linxes.

As for the Unicorn, if it have the head of a Deer, and the tail of a Boar, as *Vartomannus* describeth it, how agreeable it is to this picture every eye may discern. If it be made bisulcous or cloven footed, it agreeth unto the description of *Vartommanus*, but scarce of any other; and *Aristotle* supposeth that such as divide the hoof, do also double the horn; they being both of the same nature, and admitting division together. And lastly if the horn have this situation and be so forwardly affixed, as is described, it will not be easily conceived, how it can feed from the ground; and therefore we observe, that Nature in other cornigerous animals, hath placed the horns higher and reclining, as in Bucks; in some inverted upwards, as in the Rhinoceros, the *Indian* Ass, and Unicornous Beetles; and thus have some affirmed it is seated in this animal. CHAP. XIX

We cannot but observe that in the Picture of *Jonah* and others, Whales are described with two prominent spouts on their heads; whereas indeed they have but one in the forehead, and terminating over the windpipe. Nor can we overlook the Picture of Elephants with Castles on their backs, made in the form of land Castles, or stationary fortifications, and answerable unto the Arms of *Castile*, or Sir *John* Old Castle; whereas the towers they bore were made of wood, and girt unto their bodies; as is delivered in the books of *Maccabees*, and as they were appointed in the Army of *Antiochus*.

We will not dispute the Pictures of Retiary Spiders, and their position in the web, which is commonly made lateral, and regarding the Horizon; although, if observed, we shall commonly find it downward, and their heads respecting the Center. We will not con-

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trovert the Picture of the seven Stars; although if thereby be meant the Pleiades, or subconstellation upon the back of Taurus, with what congruity they are described, either in site or magnitude, in a clear night an ordinary eye may discover, from July unto April. We will not question the tongues of Adders and Vipers, described like an Anchor; nor the Picture of the Flower *de Luce*: though how far they agree unto their natural draughts, let every spectator determine.

Where the seven Stars be situated.

Whether the Cherubims about the Ark be rightly described in the common Picture, that is, only in humane heads, with two wings; or rather in the shape of Angels or young men, or somewhat at least with feet, as the Scripture seems to imply. Whether the Cross seen in the air by *Constantine*, were of that figure wherein we represent it; or rather made out of *X* and *P*, the two first letters of χριστός. Whether the Cross of Christ did answer the common figure; whether so far advanced above his head; whether the feet were so disposed, that is, one upon another, or separately nailed, as some with reason describe it: we shall not at all contend. Much less whether the house of *Diogenes* were a Tub framed of wood, and after the manner of ours, or rather made of earth, as learned men conceive, and so more clearly make out that expression of *Juvenal*. We should be too critical to question the letter *Y*, or bicornous element of *Pythagoras*, that is, the making of the horns equal: or the left less then the right, and so destroying the Symbolical intent of the figure; confounding the narrow line of Vertue, with the larger road of Vice; answerable unto the narrow door of Heaven, and the ample gates of Hell, expressed by our Saviour, and not forgotten by *Homer*, in that Epithete of *Pluto's* house.

2 Chron. 3. 13.

— Dolia magni non ardent Cynici, etc.

Εὐρυπυλής.

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Many more there are whereof our pen shall take no notice, nor shall we urge their enquiry; we shall not enlarge with what incongruity, and how dissenting from the pieces of Antiquity, the Pictures of their gods and goddesses are described, and how hereby their symbolical sense is lost; although herein it were not hard to be informed from *Phornutus*, *Fulgentius*, and *Albricus*. Whether *Hercules* be more properly described strangling than tearing the Lion, as *Victorius* hath disputed; nor how the characters and figures of the Signs and Planets be now perverted, as *Salmasius* hath learnedly declared. We will dispence with Bears with long tails, such as are described in the figures of heaven; We shall tolerate flying Horses, black Swans, Hydra's, Centaur's, Harpies and Satyrs; for these are monstrosities, rarities, or else Poetical fancies, whose shadowed moralities requite their substantial falsities. Wherein indeed we must not deny a liberty; nor is the hand of the Painter more restrainable than the Poet. But where the real works of Nature, or veritable acts of storie are to be described, digressions are aberrations; and Art being but the imitator or secondary representor, it must not vary from the verity of the example; or describe things otherwise than they truly are or have been. For hereby introducing false Idea's of things it perverts and deforms the face and symmetry of truth.

Phornut. De natura deorum. Fulg. mytho. Logia. Albric. De deorum imaginibus.

CHAP. XX

CHAPTER XX

Of the Hieroglyphical Pictures of the *Egyptians.*

CERTAINLY of all men that suffered from the confusion of *Babel*, the *Ægyptians* found the best evasion; for, though words were confounded, they invented a language of things, and spake unto each other by common notions in Nature. Whereby they discoursed in silence, and were intuitively understood from the theory of their Expresses. For they assumed the shapes of animals common unto all eyes; and by their conjunctions and compositions were able to communicate their conceptions, unto any that co-apprehended the Syntaxis of their Natures. This many conceive to have been the primitive way of writing, and of greater antiquity than letters; and this indeed might *Adam* well have spoken, who understanding the nature of things, had the advantage of natural expressions. Which the *Egyptians* but taking upon trust, upon their own or common opinion; from conceded mistakes they authentically promoted errors; describing in their Hieroglyphicks creatures of their own invention; or from known and conceded animals, erecting significations not inferrible from their natures.

And first, Although there were more things in Nature than words which did express them; yet even in these mute and silent discourses, to express complexed significations, they took a liberty to compound and piece together creatures of allowable forms into mixtures inexistent. Thus began the descriptions of Griphins, Basilicks, Phœnix, and many more; which

Emblematists and Heralds have entertained with significations answering their institutions; Hieroglyphically adding Martegres, Wivernes, Lion fishes, with divers others. Pieces of good and allowable invention unto the prudent Spectator, but are lookt on by vulgar eyes as literal truths, or absurd impossibilities; whereas indeed, they are commendable inventions, and of laudable significations. CHAP. XX

Again, Beside these pieces fictitiously set down, and having no Copy in Nature; they had many unquestionable drawn, of inconsequent signification, nor naturally verifying their intention. We shall instance but in few, as they stand recorded by *Orus*. The male sex they expressed by a Vulture, because of Vultures all are females, and impregnated by the wind; which authentically transmitted hath passed many pens, and became the assertion of *Ælian*, *Ambrose*, *Basil*, *Isidore*, *Tzetzes*, *Philes*, and others. Wherein notwithstanding what injury is offered unto the Creation in this confinement of sex, and what disturbance unto Philosophy in the concession of windy conceptions, we shall not here declare. By two dragms they thought it sufficient to signifie an heart; because the heart at one year weigheth two dragms, that is, a quarter of an ounce, and unto fifty years annually encreaseth the weight of one dragm, after which in the same proportion it yearly decreaseth; so that the life of a man doth not naturally extend above an hundred. And this was not only a popular conceit, but consentaneous unto their Physical principles, as *Heurnius* hath accounted it. *In his* Philosophia Barbarica.

A Woman that hath but one Child, they express by a Lioness; for that conceiveth but once. Fecundity they set forth by a Goat, because but seven daies old,

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it beginneth to use coition. The abortion of a Woman they describe by an Horse kicking a Wolf; because a Mare will cast her foal if she tread in the track of that animal. Deformity they signifie by a Bear; and an unstable Man by an Hyæna, because that animal yearly exchangeth its sex. A Woman delivered of a female Child, they imply by a Bull looking over his left shoulder; because if in coition a Bull part from a Cow on that side, the Calf will prove a female.

All which, with many more, how far they consent with truth, we shall not disparage our Reader to dispute; and though some way allowable unto wiser conceits, who could distinctly receive their significations: yet carrying the majesty of Hieroglyphicks, and so transmitted by Authors: they crept into a belief with many, and favourable doubt with most. And thus, I fear, it hath fared with the Hieroglyphical Symboles of Scripture: which excellently intended in the species of things sacrificed, in the prohibited meats, in the dreams of *Pharoah*, *Joseph*, and many other passages: are oft-times wrackt beyond their symbolizations, and inlarg'd into constructions disparaging their true intentions.

CHAPTER XXI

Of the Picture of *Haman* hanged.

IN common draughts, *Haman* is hanged by the Neck upon an high Gibbet, after the usual and now practised way of suspension, but whether this description truly answereth the Original, Learned pens consent not, and good grounds there are to doubt. For it is not easily made out that this was an ancient

way of Execution, in the publick punishment of Malefactors among the *Persians*; but we often read of Crucifixion in their Stories. So we find that *Oroetes*[1] a *Persian* Governour crucified *Polycrates* the *Samian* Tyrant. And hereof we have an example in the life of *Artaxerxes* King of *Persia*; (whom some will have to be *Ahasuerus* in this Story) that his Mother *Parysatis* flead and crucified her *Eunuch*. The same also seems implied in the letters patent of King *Cyrus*. *In Ezra 6.* *Omnis qui hanc mutaverit jussionem, tollatur lignum de domo ejus, et erigatur et configatur in eo.*

The same kind of punishment was in use among the *Romans*, *Syrians*, *Egyptians*, *Carthaginians* and *Grecians*. For though we find in *Homer*, that *Ulysses* in a fury hanged the strumpets of those who courted *Penelope*, yet is it not so easie to discover, that this was the publick practice or open course of justice among the *Greeks*.

And even that the *Hebrews* used this present way of hanging, by illaqueation or pendulous suffocation in publick justice and executions; the expressions and examples in scripture conclude not beyond good doubt.

That the King of *Hai* was hanged, or destroyed by the common way of suspension, is not conceded by the learned *Masius* in his comment upon that text; who conceiveth thereby rather some kind of crucifixion; at least some patibulary affixion after he was slain; and so represented unto the people untill toward the evening.

Though we read in our translation, that *Pharaoh* hanged the chief Baker, yet learned expositors understand hereby some kind of crucifixion, according to the mode of *Egypt*, whereby he exemplarily hanged

[1] *Orestes*, 1672, 1686, etc.

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out till the fowls of the air fed on his head or face, the first part of their prey being the eyes. And perhaps according to the signal draught hereof in a very old manuscript of *Genesis*, now kept in the Emperors Library at *Vienna*; and accordingly set down by the learned *Petrus Zamberius*, in the second Tome of the description of that Library.

When the *Gibeonites* hanged the bodies of those of the house of *Saul*, thereby was intended some kind of crucifying, according unto good expositors, and the vulgar translation: *crucifixerunt eos in monte coram domino*; many both in Scripture and humane writers might be said to be crucified, though they did not perish immediately by crucifixion: But however otherwise destroyed, their bodies might be afterward appended or fastned unto some elevated engine, as exemplary objects unto the eyes of the people: So sometimes we read of the crucifixion of only some part, as of the Heads of *Julianus* and *Albinus*, though their bodies were cast away.

Deut. 21.

That legal Text which seems to countenance the common way of hanging, if a man hath committed a sin worthy of Death, and they hang him on a Tree; is not so received by Christian and Jewish expositors. And as

Ainsworth.

a good Annotator of ours delivereth, out of *Maimonides*: The *Hebrews* understand not this of putting him to death by hanging, but of hanging of a Man after he was stoned to death; and the manner is thus described. After he is stoned to death, they fasten a piece of timber in the Earth, and out of it there commeth a piece of wood, and then they tye both his hands one to another, and hang him unto the setting of the Sun.

Beside, the original word *Hakany* determineth not the doubt. For that by *Lexicographers* or *Dictionarie*

interpreters, is rendred suspension and crucifixion; there being no *Hebrew* word peculiarly and fully expressing the proper word of crucifixion, as it was used by the *Romans*; nor easie to prove it the custom of the *Jewish* Nation to nail them by distinct parts unto a Cross, after the manner of our SAVIOUR crucified: wherein it was a special favour indulged unto *Joseph* to take down the Body. CHAP. XXI

Lipsius[1] lets fall a good caution to take off doubts about suspension delivered by ancient Authors, and also the ambiguous sence of κρεμάσαι among the *Greeks*. *Tale apud Latinos ipsum suspendere, quod in crucem referendum moneo juventutem*, as that also may be understood of *Seneca*. *Latrocinium fecit aliquis, quid ergo meruit? ut suspendatur*. And this way of crucifying he conceiveth to have been in general use among the *Romans*, until the latter daies of *Constantine*, who in reverence unto our SAVIOUR abrogated that opprobrious and infamous way of crucifixion. Whereupon succeeded the common and now practised way of suspension.

But long before this abrogation of the Cross, the *Jewish* Nation had known the true sense of crucifixion; whereof no Nation had a sharper apprehension, while *Adrian* crucified five hundred of them every day, until Wood was wanting for that service. So that they which had nothing but *crucifie* in their mouths, were therewith paid home in their own bodies: Early suffering the reward of their imprecations, and properly in the same kind.

[1] *Lipsius*, 1672.

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CHAPTER XXII

Compendiously of many questionable Customs, Opinions, Pictures, Practices, and Popular Observations.

1. IF an Hare cross the high way, there are few above threescore years that are not perplexed thereat: which notwithstanding is but an Augurial terror, according to that received expression, *Inauspicatum dat iter oblatus Lepus.* And the ground of the conceit was probably no greater than this, that a fearful animal passing by us, portended unto us some thing to be feared: as upon the like consideration, the meeting of a Fox presaged some future imposture; which was a superstitious observation prohibited unto the *Jews*, as is expressed in the Idolatry of *Maimonides*, and is referred unto the sin of an observer of Fortunes, or one that abuseth events unto good or bad signs; forbidden by the Law of *Moses*; which notwithstanding sometimes succeeding, according to fears or desires, have left impressions and timerous expectations in credulous minds for ever.

The ground of many vain observations. Deut. 18.

2. That Owls and Ravens are ominous appearers, and pre-signifying unlucky events, as Christians yet conceit, was also an Augurial conception. Because many Ravens were seen when *Alexander* entred *Babylon*, they were thought to pre-ominate his death; and because an Owl appeared before the battle, it presaged the ruin of *Crassus*. Which though decrepite superstitions, and such as had their nativity in times beyond all history, are fresh in the observation of many heads, and by the credulous and feminine party

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still in some Majesty among us. And therefore the Emblem of Superstition was well set out by *Ripa*, in the picture of an Owl, an Hare, and an Old Woman. And it no way confirmeth the Augurial consideration, that an Owl is a forbidden food in the Law of *Moses*; or that *Jerusalem* was threatned by the Raven and the Owl, in that expression of *Esay* 34. That it should be a court for Owls, that the Cormorant and the Bittern should possess it, and the Owl and the Raven dwell in it. For thereby was only implied their ensuing desolation, as is expounded in the words succeeding; He shall draw upon it the line of confusion, and the stones of emptiness.

The Emblem of superstition. Iconologia de Cæsare Ripa.

3. The falling of Salt is an authentick presagement of ill luck, nor can every temper contemn it; from whence notwithstanding nothing can be naturally feared: nor was the same a general prognostick of future evil among the Ancients, but a particular omination concerning the breach of friendship. For Salt as incorruptible, was the Symbole of friendship, and before the other service was offered unto their guests; which if it casually fell, was accounted ominous, and their amity of no duration. But whether Salt were not only a Symbole of friendship with man, but also a figure of amity and reconciliation with God, and was therefore observed in sacrifices, is an higher speculation.

4. To break the egg shell after the meat is out, we are taught in our childhood, and practise it all our lives; which nevertheless is but a superstitious relict, according to the judgment of *Pliny*, *Huc pertinet ovorum, ut exorbuerit quisq; calices protinus frangi, aut eosdem cochlearibus perforari*; and the intent hereof was to prevent witchcraft; for lest witches should draw or prick

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their names therein, and veneficiously mischief their persons, they broke the shell, as *Dalecampius* hath observed.

5. The true Lovers knot is very much magnified, and still retained in presents of Love among us; which though in all points it doth not make out, had perhaps its original from the *Nodus Herculanus*, or that which was called *Hercules* his knot, resembling the snaky complication in the caduceus or rod of *Hermes*; and in which form the Zone or woollen girdle of the Bride was fastned, as *Turnebus* observeth in his *Adversaria*.

6. When our cheek burneth or ear tingleth, we usually say that some body is talking of us, which is an ancient conceit, and ranked among superstitious opinions by *Pliny*. *Absentes tinnitu aurium præsentire sermones de se receptum est*, according to that distick noted by *Dalecampius*.

Garrula quid totis resonas mihi noctibus auris?
Nescio quem dicis nunc meminisse mei.

Which is a conceit hardly to be made out without the concession of a signifying *Genius*, or universal *Mercury*; conducting sounds unto their distant subjects, and teaching us to hear by touch.

The original of the proverb, Under the Rose be it, *etc.*

7. When we desire to confine our words, we commonly say they are spoken under the Rose; which expression is commendable, if the Rose from any natural property may be the Symbole of silence, as *Nazianzene* seems to imply in these translated verses:

Utq; latet Rosa Verna suo putamine clausa,
Sic os vincla ferat, validisq; arctetur habenis,
Indicatq; suis prolixa silentia labris:

And is also tolerable, if by desiring a secrecy to

words spoke under the Rose, we only mean in society and compotation, from the ancient custom in Symposiack meetings, to wear chaplets of Roses about their heads: and so we condemn not the *German* custom, which over the Table describeth a Rose in the cieling. But more considerable it is, if the original were such as *Lemnius*, and others have recorded; that the Rose was the flower of *Venus*, which *Cupid* consecrated unto *Harpocrates* the God of silence, and was therefore an Emblem thereof, to conceal the pranks of Venery; as is declared in this Tetrastick; CHAP. XXII

Est Rosa flos veneris, cujus quo facta laterent,
Harpocrati matris, dona dicavit Amor;
Inde Rosam mensis hospes suspendit Amicis.
Convivæ ut sub eâ dicta tacenda sciant.

8. That smoak doth follow the fairest, is an usual saying with us, and in many parts of *Europe*; whereof although there seem no natural ground, yet it is the continuation of a very ancient opinion, as *Petrus Victorius* and *Causabon* have observed from a passage in *Athenæus*: wherein a *Parasite* thus describeth himself:

To every Table first I come,
Whence Porridge I am cal'd by some:
A Capaneus at Stures I am,
To enter any Room a Ram;
Like whips and thongs to all I ply,
Like smoake unto the Fair I fly.

9. To sit cross leg'd, or with our fingers pectinated or shut together, is accounted bad, and friends will perswade us from it. The same conceit religiously possessed the Ancients, as is observable from *Pliny*. *Poplites alternis genibus imponere nefas olim*; and also from *Athenæus*, that it was an old veneficious practice,

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and *Juno* is made in this posture to hinder the delivery of *Alcmena*. And therefore, as *Pierius* observeth, in the Medal of *Julia Pia*, the right hand of *Venus* was made extended with the inscription of *Venus, Genetrix*; for the complication or pectination of the fingers was an Hieroglyphick of impediment, as in that place he declareth.

10. The set and statary times of pairing of nails, and cutting of hair, is thought by many a point of consideration; which is perhaps but the continuation of an ancient superstition. For piaculous it was unto the *Romans* to pare their nails upon the Nundinæ, observed every ninth day; and was also feared by others in certain daies of the week; according to that of *Ausonius*, *Ungues Mercurio, Barbam Jove, Cypride Crines*; and was one part of the wickedness that filled up the measure of *Manasses*, when 'tis delivered that he observed times.

a Chron. 33.

11. A common fashion it is to nourish hair upon the mouls of the face; which is the perpetuation of a very ancient custom; and though innocently practised among us, may have a superstitious original, according to that of *Pliny*, *Nævos in facie tondere religiosum habent nunc multi*. From the like might proceed the fears of poling Elvelocks or complicated hairs of the head, and also of locks longer than the other hair; they being votary at first, and dedicated upon occasion; preserved with great care, and accordingly esteemed by others, as appears by that of *Apuleius*, *Adjuro per dulcem capilli tui nodulum*.

12. A custom there is in most parts of *Europe* to adorn Aqueducts, spouts and Cisterns with Lions heads: which though no illaudable ornament, is of an *Egyptian* genealogy,[1] who practised the same under a

[1] geneologie, 1658, 1669, geneology, 1672.

symbolical illation. For because the Sun being in Leo, the flood of *Nilus* was at the full, and water became conveyed into every part, they made the spouts of their Aqueducts through the head of a Lion. And upon some cœlestial respects it is not improbable the great Mogul or *Indian* King doth bear for his Arms a Lion and the Sun. CHAP. XXII

13. Many conceive there is somewhat amiss, and that as we usually say, they are unblest until they put on their girdle. Wherein (although most know not what they say) there are involved unknown considerations. For by a girdle or cincture are symbolically implied Truth, Resolution, and Readiness unto action, which are parts and vertues required in the service of God. According whereto we find that the *Israelites* did eat the Paschal Lamb with their loins girded; and the Almighty challenging *Job*, bids him gird up his loins like a man. So runneth the expression of *Peter*, Gird up the loins of your minds, be sober and hope to the end: so the high Priest was girt with the girdle of fine linnen: so is it part of the holy habit to have our lines girt about with truth; and so is it also said concerning our Saviour, Righteousness shall be the girdle of his loins, and faithfulness the girdle of his reins. *Symbolical significations of the girdle.* Isa. 11.

Moreover by the girdle, the heart and parts which God requires are divided from the inferior and concupiscential organs; implying thereby a memento unto purification and cleanness of heart, which is commonly defiled from the concupiscence and affection of those parts; and therefore unto this day the *Jews* do bless themselves when they put on their zone or cincture. And thus may we make out the doctrin of *Pythagoras*, to offer sacrifice with our feet naked, that is, that our

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inferiour parts and farthest removed from reason might be free, and of no impediment unto us. Thus *Achilles*, though dipped in Styx, yet having his heel untouched by that water; although he were fortified elsewhere, he was slain in that part, as only vulnerable in the inferiour and brutal part of Man. This is that part of *Eve* and her posterity the devil still doth bruise, that is, that part of the soul which adhereth unto earth, and walks in the paths thereof. And in this secundary and symbolical sense it may be also understood, when the Priests in the Law washed their feet before the sacrifice; when our Saviour washed the feet of his Disciples, and said unto *Peter*, If I wash not thy feet thou hast no part in me. And thus is it symbolically explainable, and implyeth purification and cleanness, when in the burnt offerings the Priest is commanded to wash the inwards and legs thereof in water; and in the peace and sin-offerings, to burn the two kidneys, the fat which is about the flanks, and as we translate it, the Caul above the Liver. But whether the *Jews* when they blessed themselves, had any eye unto the words of *Jeremy*, wherein God makes them his Girdle; or had therein any reference unto the Girdle, which the Prophet was commanded to hide in the hole of the rock of *Euphrates*, and which was the type of their captivity, we leave unto higher conjecture.

Jer. 13.

Certain Hereticks who ascribed humane figure unto God, after which they conceived he created man in his likeness.

14. The Picture of the Creator, or God the Father in the shape of an old Man, is a dangerous piece, and in this Fecundity of sects may revive the Anthropomorphites. Which although maintained from the expression of *Daniel*, I beheld where the Ancient of dayes did sit, whose hair of his head was like the pure wool; yet may it be also derivative from the Hieroglyphical description of the *Ægyptians*; who to express their

Eneph, or Creator of the world, described an old man in a blew mantle, with an egg in his mouth; which was the Emblem of the world. Surely those heathens, that notwithstanding the exemplary advantage in heaven, would endure no pictures of Sun or Moon, as being visible unto all the world, and needing no representation; do evidently accuse the practice of those pencils, that will describe invisibles. And he that challenged the boldest hand unto the picture of an Echo, must laugh at this attempt, not only in the description of invisibility, but circumscription of Ubiquity, and fetching under lines incomprehensible circularity. CHAP. XXII

The Pictures of the *Ægyptians* were more tolerable, and in their sacred letters more veniably expressed the apprehension of Divinity. For though they implied the same by an eye upon a Scepter, by an Ægles head, a Crocodile, and the like: yet did these manual descriptions pretend no corporal representations; nor could the people misconceive the same unto real correspondencies. So though the Cherub carried some apprehension of Divinity, yet was it not conceived to be the shape thereof: and so perhaps because it is metaphorically predicated of God, that he is a consuming fire, he may be harmlessly described by a flaming representation; Yet if, as some will have it, all mediocrity of folly is foolish, and because an unrequitable evil may ensue, an indifferent convenience must be omitted; we shall not urge such representments; we could spare the holy Lamb for the picture of our Saviour, and the Dove or fiery Tongues to represent the holy Ghost.

15. The Sun and Moon are usually described with humane faces; whether herein there be not a *Pagan*

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imitation, and those visages at first implied *Apollo* and *Diana*, we may make some doubt; and we find the statua of the Sun was framed with raies about the head, which were the indiciduous and unshaven locks of *Apollo*. We should be too Iconomical to question the pictures of the winds, as commonly drawn in humane heads, and with their cheeks distended; which notwithstanding we find condemned by *Minutius*, as answering poetical fancies, and the gentile description of *Æolus*, *Boreas*, and the feigned Deities of winds.

Or quarrelsom with Pictures.

Dion. Ep. 7. *a.* ad Policar. et Pet. Hall not. in vit. 3. Dionys.

16. We shall not, I hope, disparage the Resurrection of our Redeemer, if we say the Sun doth not dance on Easter day. And though we would willingly assent unto any sympathetical exultation, yet cannot conceive therein any more than a Tropical expression. Whether any such motion there were in that day wherein Christ arised, Scripture hath not revealed, which hath been punctual in other records concerning solary miracles: and the Areopagite that was amazed at the Eclipse, took no notice of this. And if metaphorical expressions go so far, we may be bold to affirm, not only that one Sun danced, but two arose that day: That light appeared at his nativity, and darkness at his death, and yet a light at both; for even that darkness was a light unto the *Gentiles*, illuminated by that obscurity. That 'twas the first time the Sun set above the Horizon; that although there were darkness above the earth, there was light beneath it, nor dare we say that hell was dark if he were in it.

17. Great conceits are raised of the involution or membranous covering, commonly called the Silly-how, that sometimes is found about the heads of children upon their birth; and is therefore preserved with great care, not only as medical in diseases, but effectual in

success, concerning the Infant and others; which is surely no more than a continued superstition. For hereof we read in the life of *Antoninus* delivered by *Spartianus*, that children are born sometimes with this natural cap; which Midwives were wont to sell unto credulous Lawyers, who had an opinion it advantaged their promotion. CHAP. XXII

But to speak strictly, the effect is natural, and thus may be conceived: Animal conceptions have largely taken three teguments, or membranous films which cover them in the womb, that is, the Corion, Amnios, and Allantois; the Corion is the outward membrance wherein are implanted the Veins, Arteries and umbilical vessels, whereby its nourishment is conveyed: the Allantois a thin coat seated under the Corion, wherein are received the watery separations conveyed by the Urachus, that the acrimony thereof should not offend the skin. The Amnios is a general investment, containing the sudorus or thin serosity perspirable through the skin. Now about the time when the Infant breaketh these coverings, it sometimes carrieth with it about the head a part of the Amnios or nearest coat; which saith *Spiegelius*, either proceedeth from the toughness of the membrance or weakness of the Infant that cannot get clear thereof. And therefore herein significations are natural and concluding upon the Infant, but not to be extended unto magical signalities, or any other person. De formato fœtu.

18. That 'tis good to be drunk once a moneth, is a common flattery of sensuality, supporting it self upon Physick, and the healthful effects of inebriation. This indeed seems plainly affirmed by *Avicenna*, a Physitian of great authority, and whose religion prohibiting Wine, could less extenuate ebriety. But *Averroes* a

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man of his own faith was of another belief; restraining his ebriety unto hilarity, and in effect making no more thereof than *Seneca* commendeth, and was allowable in *Cato*; that is, a sober incalescence and regulated æstuation from wine; or what may be conceived between *Joseph* and his brethren, when the text expresseth they were merry, or drank largely, and whereby indeed the commodities set down by *Avicenna*, that is, alleviation of spirits, resolution of superfluities, provocation of sweat and urine may also ensue. But as for dementation, sopition of reason, and the diviner particle from drink; though *American* religion approve, and *Pagan* piety of old hath practised it, even at their sacrifices; Christian morality and the doctrine of Christ will not allow. And surely that religion which excuseth the fact of *Noah*, in the aged surprizal of six hundred years, and unexpected inebriation from the unknown effects of wine, will neither acquit ebriosity nor ebriety, in their known and intended perversions.

And indeed, although sometimes effects succeed which may relieve the body, yet if they carry mischief or peril unto the soul, we are therein restrainable by Divinity, which circumscribeth Physick, and circumstantially determines the use thereof. From natural considerations, Physick commendeth the use of venery; and happily, incest, adultery, or stupration may prove as Physically advantagious, as conjugal copulation; which notwithstanding must not be drawn into practise. And truly effects, consequents, or events which we commend, arise oft-times from wayes which we all condemn. Thus from the fact of *Lot*, we derive the generation of *Ruth*, and blessed Nativity of our Saviour; which notwithstanding did not extenuate the incestuous ebriety of the generator. And if, as is

commonly urged, we think to extenuate ebriety from the benefit of vomit oft succeeding, *Egyptian* sobriety will condemn us, which purged both wayes twice a moneth, without this perturbation: and we foolishly contemn the liberal hand of God, and ample field of medicines which sobriety produce that action. CHAP. XXII

19. A conceit there is, that the Devil commonly appeareth with a cloven hoof; wherein although it seem excessively ridiculous, there may be somewhat of truth; and the ground thereof at first might be his frequent appearing in the shape of a Goat, which answers that description. This was the opinion of ancient Christians concerning the apparition of Panites, Fauns and Satyres; and in this form we read of one that appeared unto *Antony* in the wilderness. The same is also confirmed from expositions of holy Scripture; for whereas it is said, Thou shalt not offer unto Devils, the Original word is *Seghnirim*, that is, rough and hairy Goats, because in that shape the Devil most often appeared; as is expounded by the *Rabbins*, as *Tremellius* hath also explained; and as the word *Ascimah*, the god of *Emath* is by some conceived. Nor did he only assume this shape in elder times, but commonly in later dayes, especially in the place of his worship, if there be any truth in the confession of Witches, and as in many stories it stands confirmed by *Bodinus*. And therefore a Goat is not improperly made the Hieroglyphick of the devil, as *Pierius* hath expressed it. So might it be the Emblem of sin, as it was in the sin-offering; and so likewise of wicked and sinful men, according to the expression of Scripture in the method of the last distribution; when our Saviour shall separate the Sheep from the Goats, that is, the Sons of the Lamb from the children of the devil.

Why the devil is commonly said to appear with a cloven foot.

Levit. 17.

In his Dæmonomania.

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CHAPTER XXIII

Of some others.

1. THAT temperamental dignotions, and conjecture of prevalent humours, may be collected from spots in our nails, we are not averse to concede. But yet not ready to admit sundry divinations, vulgarly raised upon them. Nor do we observe it verified in others, what *Cardan* discovered as a property in himself: to have found therein some signs of most events that ever happened unto him. Or that there is much considerable in that doctrine of Cheiromancy, that spots in the top of the nails do signifie things past; in the middle, things present; and at the bottom, events to come. That white specks presage our felicity, blew ones our misfortunes. That those in the nail of the thumb have significations of honour, those in the forefinger, of riches, and so respectively in other fingers, (according to Planetical relations, from whence they receive their names) as *Tricassus* hath taken up, and *Picciolus* well rejecteth.

De varietate rerum.

De inspectione manus.

We shall not proceed to querie, what truth there is in Palmistry, or divination from those lines in our hands, of high denomination. Although if any thing be therein, it seems not confinable unto man; but other creatures are also considerable; as is the fore-foot of the Moll, and especially of the Monkey; wherein we have observed the table line, that of life, and of the liver.

2. That Children committed unto the school of Nature, without institution would naturally speak the

primitive language of the world, was the opinion of ancient heathens, and continued since by Christians: who will have it our *Hebrew* tongue, as being the language of *Adam*. That this were true, were much to be desired, not only for the easie attainment of that useful tongue, but to determine the true and primitive Hebrew. For whether the present Hebrew, be the unconfounded language of *Babel*, and that which remaining in *Heber* was continued by *Abraham* and his posterity, or rather the language of *Phœnicia* and *Canaan*, wherein he lived, some learned men I perceive do yet remain unsatisfied. Although I confess probability stands fairest for the former: nor are they without all reason, who think that at the confusion of tongues, there was no constitution of a new speech in every family: but a variation and permutation of the old; out of one common language raising several Dialects: the primitive tongue remaining still intire. Which they who retained, might make a shift to understand most of the rest. By vertue whereof in those primitive times and greener confusions, *Abraham* of the family of *Heber* was able to converse with the *Chaldeans*, to understand *Mesopotamians*, *Cananites*, *Philistins*, and *Egyptians*: whose several Dialects he could reduce unto the Original and primitive tongue, and so be able to understand them.

CHAP. XXIII

How Abraham *might understand the language of several Nations.*

3. Though useless unto us, and rather of molestation, we commonly refrain from killing Swallows, and esteem it unlucky to destroy them: whether herein there be not a *Pagan* relique, we have some reason to doubt. For we read in *Ælian*, that these birds were sacred unto the *Penates* or houshold gods of the ancients, and therefore were preserved. The same they also honoured as the nuncio's of the spring; and

The same is extant in the 8th *of* Athenæus.

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we find in *Athenæus* that the *Rhodians* had a solemn song to welcome in the Swallow.

Why candles may burn blew, before the apparition of a spirit.

4. That Candles and Lights burn dim and blew at the apparition of spirits, may be true, if the ambient ayr be full of sulphurious spirits, as it happeneth oftimes in mines; where damps and acide exhalations are able to extinguish them. And may be also verified, when spirits do make themselves visible by bodies of such effluviums. But of lower consideration is the common foretelling of strangers, from the fungous parcels about the weeks of Candles: which only signifieth a moist and pluvious ayr about them, hindering the avolation of the light and favillous particles: whereupon they are forced to settle upon the Snast.

5. Though Coral doth properly preserve and fasten the Teeth in men, yet is it used in Children to make an easier passage for them: and for that intent is worn about their necks. But whether this custom were not superstitiously founded, as presumed an amulet or defensative against fascination, is not beyond all doubt. For the same is delivered by *Pliny*. *Aruspices religiosum Coralli gestamen amoliendis periculis arbitrantur; et surculi infantiæ alligati, tutelam habere creduntur.*

Lib. 32.

6. A strange kind of exploration and peculiar way of Rhabdomancy is that which is used in mineral discoveries; that is, with a forked hazel, commonly called *Moses* his Rod, which freely held forth, will stir and play if any mine be under it. And though many there are who have attempted to make it good, yet until better information, we are of opinion with *Agricola*, that in it self it is a fruitless exploration, strongly scenting of *Pagan* derivation, and the *virgula Divina*,

De re metallica, lib. 2.

proverbially magnified of old. The ground whereof were the Magical rods in Poets that of *Pallas* in *Homer*, that of *Mercury* that charmed *Argus*, and that of *Circe* which transformed the followers of *Ulysses*. Too boldly usurping the name of *Moses* rod, from which notwithstanding, and that of *Aaron*, were probably occasioned the fables of all the rest. For that of *Moses* must needs be famous unto the *Ægyptians*; and that of *Aaron* unto many other Nations, as being preserved in the Ark, until the destruction of the Temple built by *Solomon*. CHAP. XXIII

7. A practise there is among us to determine doubtful matters, by the opening of a book, and letting fall a staff; which notwithstanding are ancient fragments of *Pagan* divinations. The first an imitation of *Sortes Homericæ*, or *Virgilianæ*, drawing determinations from verses casually occurring. The same was practised by *Severus*, who entertained ominous hopes of the Empire, from that verse in *Virgil*, *Tu regere imperio populos, Romane, memento*; and *Cordianus* who reigned but few dayes was discouraged by another, that is, *Ostendunt terris hunc tantum fata, nec ultra esse sinunt.* Nor was this only performed in heathen Authors, but upon the sacred text of Scripture, as *Gregorius Turonensis* hath left some account, and as the practise of the Emperour *Heraclius*, before his Expedition into *Asia* minor, is delivered by *Cedrenus*.

As for the Divination or decision from the staff; it is an Augurial relique, and the practise thereof is accused by God himself; My people ask counsel of their stocks, and their staff declareth unto them. Of this kind of Rhabdomancy was that practised by *Nabuchadonozor* in that *Caldean* miscellany, delivered by *Ezekiel*; the king of *Babylon* stood at the parting Hosea 4. Ezek. 24.

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of the way, at the head of two wayes to use divination, he made his arrows bright, he consulted with Images, he looked in the Liver; at the right hand were the divinations of *Jerusalem*. That is, as *Estius* expounded it, the left way leading unto *Rabbah*, the chief City of the *Ammonites*, and the right unto *Jerusalem*, he consulted *Idols* and entrails, he threw up a bundle of arrows to see which way they would light; and falling on the right hand he marched towards *Jerusalem*. A like way of Belomancy or Divination by arrows hath been in request with *Scythians*, *Alanes*, *Germans*, with the *Africans* and *Turks* of *Algier*. But of another nature was that which was practised by *Elisha*, when by an arrow shot from an Eastern window, he pre-signified the destruction of *Syria*; or when according unto the three stroaks of *Joash*, with an arrow upon the ground, he foretold the number of his victories. For thereby the spirit of God particular'd the same; and determined the stroaks of the King unto three, which the hopes of the Prophet expected in twice that number.

2 King. 13. 15.

Dion. Cassii. lib. 37.

8. We cannot omit to observe the tenacity of ancient customs, in the nominal observation of the several dayes of the week, according to *Gentile* and *Pagan* appellations: for the Original is very high, and as old as the ancient *Ægyptians*, who named the same according to the seven Planets, the admired stars of heaven, and reputed Deities among them. Unto every one assigning a several day; not according to their cœlestial order, or as they are disposed in heaven; but after a diatesseron or musical fourth. For beginning Saturday with Saturn, the supremest Planet, they accounted by Jupiter and Mars unto Sol, making Sunday. From Sol in like manner by Venus and Mercury unto Luna,

making Munday; and so through all the rest. And the same order they confirmed by numbering the hours of the day unto twenty four, according to the natural order of the Planets. For beginning to account from Saturn, Jupiter, Mars, and so about unto twenty four, the next day will fall unto Sol; whence accounting twenty four, the next will happen unto Luna, making Munday. And so with the rest, according to the account and order observed still among us. CHAP. XXIII

The *Jews* themselves in their Astrological considerations, concerning Nativities, and Planetary hours, observe the same order, upon as witty foundations. Because by an equal interval, they make seven triangles, the bases whereof are the seven sides of a septilateral figure, described within a circle. That is, If a figure of seven sides be described in a circle, and at the angles thereof the names of the Planets be placed in their natural order on it: if we begin with Saturn, and successively draw lines from angle to angle, until seven equicrural triangles be described, whose bases are the seven sides of the septilateral figure; the triangles will be made by this order. The first being made by Saturn, Sol and Luna, that is, Saturday, Sunday, and Munday; and so the rest in the order still retained. Cujus Icon apud doct. Iaffarel. chap. 11. Et Fabrit. Paduantum.

But thus much is observable, that however in cœlestial considerations they embraced the received order of the Planets, yet did they not retain either characters, or names in common use amongst us; but declining humane denominations, they assigned them names from some remarkable qualities; as is very observable in their red and splendent Planets, that is, of Mars and Venus. But the change of their names disparaged not the consideration of their natures; nor did they thereby reject all memory of these remarkable Stars; which Maadim. Nogah.

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God himself admitted in his Tabernacle, if conjecture will hold concerning the Golden Candlestick, whose shaft resembled the Sun, and six branches the Planets about it.

9. We are unwilling to enlarge concerning many other; only referring unto sober examination, what natural effects can reasonably be expected, when to prevent the Ephialtes or night-Mare we hang up an hollow stone in our stables; when for amulets against Agues we use the chips of Gallows and places of execution. When for Warts we rub our hands before the Moon, or commit any maculated part unto the touch of the dead. What truth there is in those common female Doctrines, that the first Rib of Roast Beef powdered is a peculiar remedy against Fluxes. That to urine upon earth newly cast up by a Moll, bringeth down the menses in Women. That if a Child dieth, and the neck becommeth not stiff, but for many howers remaineth Lythe and Flaccid, some other in the same house will dye not long after. That if a woman with child looketh upon a dead body, her child will be of a pale complexion, our learned Philosophers and critical Philosophers might illustrate, whose exacter performances our adventures do but solicite; mean while, I hope, they will plausibly receive our attempts, or candidly correct our misconjectures.

Disce, sed ira cadat naso, rugosaque sanna,
Dum veteres avias tibi de pulmone revello.

THE SIXTH BOOK

Of sundry common opinions Cosmographical and Historical

The first Discourse comprehended in several Chapters.

CHAPTER I

Concerning the beginning of the World, that the time thereof is not precisely to be known, as men generally suppose: Of mens enquiries in what season or point of the Zodiack it began. That as they are generally made they are in vain, and as particularly applied uncertain. Of the division of the seasons and four quarters of the year, according to Astronomers and Physitians. That the common compute of the Ancients, and which is yet retained by most, is unreasonable and erroneous. Of some Divinations and ridiculous diductions from one part of the year to another. And of the Providence and Wisdom of God in the site and motion of the Sun.

CHAP. I

The age of the world not certainly determinable.

CONCERNING the World and its temporal circumscriptions, who ever shall strictly examine both extreams, will easily perceive there is not only obscurity in its end, but its beginning; that as its period is inscrutable, so is its nativity indeterminable: That as it is presumption to enquire after the one, so is there no rest or satisfactory decision in the other. And hereunto we shall more readily assent, if we examine the informations, and take a view of the several difficulties in this point; which we shall more easily do, if we consider the different conceits of men, and duly perpend the imperfections of their discoveries.

And first, The histories of the *Gentiles* afford us slender satisfaction, nor can they relate any story, or affix a probable point to its beginning. For some thereof (and those of the wisest amongst them) are so far from determining its beginning, that they opinion and maintain it never had any at all; as the doctrin of *Epicurus* implieth, and more positively *Aristotle* in his books *De Cœlo* declareth. Endeavouring to confirm it with arguments of reason, and those appearingly demonstrative; wherein his labours are rational, and uncontroulable upon the grounds assumed, that is, of Physical generation, and a Primary or first matter, beyond which no other hand was apprehended. But herein we remain sufficiently satisfied from *Moses*, and the Doctrin delivered of the Creation; that is, a production of all things out of nothing, a formation not only of matter, but of form, and a materiation even of matter it self.

Others are so far from defining the Original of the World or of mankind, that they have held opinions not only repugnant unto Chronology, but Philosophy;

that is, that they had their beginning in the soil where they inhabited; assuming or receiving appellations conformable unto such conceits. So did the *Athenians*, term themselves *αὐτόχθονες* or *Aborigines*, and in testimony thereof did wear a golden Insect on their heads: the same name is also given unto the Inlanders, or *Midland* inhabitants of this Island by *Cæsar*. But this is a conceit answerable unto the generation of the Giants; not admittable in Philosophy, much less in Divinity, which distinctly informeth we are all the seed of *Adam*, that the whole world perished unto eight persons before the flood, and was after peopled by the *Colonies* of the sons of *Noah*. There was therefore never any *Autochthon*, or man arising from the earth but *Adam*; for the Woman being formed out of the rib, was once removed from earth, and framed from that Element under incarnation. And so although her production were not by copulation, yet was it in a manner seminal: For if in every part from whence the seed doth flow, there be contained the Idea of the whole; there was a seminality and contracted *Adam* in the rib, which by the information of a soul, was individuated into *Eve*. And therefore this conceit applied unto the Original of man, and the beginning of the world, is more justly appropriable unto its end. For then indeed men shall rise out of the earth: the graves shall shoot up their concealed seeds, and in that great Autumn, men shall spring up, and awake from their Chaos again.

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Why the Athenians did wear a golden Insect upon their head.

Others have been so blind in deducing the Original of things, or delivering their own beginnings, that when it hath fallen into controversie, they have not recurred unto Chronologie or the Records of time: but betaken themselves unto probabilities, and the con-

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jecturalities of Philosophy. Thus when the two ancient Nations, *Egyptians* and *Scythians*, contended for antiquity, the *Egyptians* pleaded their antiquity from the fertility of their soil, inferring that men there first inhabited, where they were with most facility sustained; and such a land did they conceive was *Egypt*.

Diodor. Justin.

The *Scythians*, although a cold and heavier Nation urged more acutely, deducing their arguments from the two active Elements and Principles of all things, Fire and Water. For if of all things there was first an union, and that Fire over-ruled the rest: surely that part of earth which was coldest, would first get free, and afford a place of habitation. But if all the earth were first involved in Water, those parts would surely first appear, which were most high, and of most elevated situation, and such was theirs. These reasons carried indeed the antiquity from the *Egyptians*, but confirmed it not in the *Scythians*: for as *Herodotus* relateth from *Pargitaus*, their first King unto *Darius*, they accounted but two thousand years.

That men speak not by natural instinct, but by instruction and imitation.

As for the *Egyptians* they invented another way of trial; for as the same Author relateth, *Psammitichus* their King attempted this decision by a new and unknown experiment, bringing up two Infants with Goats, and where they never heard the voice of man; concluding that to be the ancientest Nation, whose language they should first deliver. But herein he forgot that speech was by instruction not instinct, by imitation, not by nature, that men do speak in some kind but like Parrets, and as they are instructed, that is, in simple terms and words, expressing the open notions of things; which the second act of Reason compoundeth into propositions, and the last into

Syllogisms and Forms of ratiocination. And howsoever the account of *Manethon* the *Egyptian* Priest run very high, and it be evident that *Mizraim* peopled that Country (whose name with the *Hebrews* it beareth unto this day) and there be many things of great antiquity related in Holy Scripture, yet was their exact account not very ancient; for *Ptolomy* their Country-man beginning his Astronomical compute no higher than *Nabonasser*, who is conceived by some the same with *Salmanasser*. As for the argument deduced from the Fertility of the soil, duly enquired, it rather overthroweth than promoteth their antiquity; if that Country whose Fertility they so advance, was in ancient times no firm or open land, but some vast lake or part of the Sea, and became a gained ground by the mud and limous matter brought down by the River *Nilus*, which setled by degrees into a firm land. According as is expressed by *Strabo*, and more at large by *Herodotus*, both from the *Egyptian* tradition and probable inducements from reason, called therefore *fluvii donum*, an accession of earth, or tract of land acquired by the River. CHAP. I.

Lastly, Some indeed there are, who have kept Records of time, and a considerable duration, yet do the exactest thereof afford no satisfaction concerning the beginning of the world, or any way point out the time of its creation. The most authentick Records and best approved antiquity are those of the *Chaldeans*; yet in the time of *Alexander* the Great, they attained not so high as the flood. For as *Simplicius* relateth, *Aristotle* required of *Calisthenes*, who accompanied that Worthy in his Expedition, that at his arrive at *Babylon*, he would enquire of the antiquity of their Records; and those upon compute he found to amount unto

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1903 years; which account notwithstanding ariseth no higher than 95 years after the flood. The *Arcadians* I confess, were esteemed of great antiquity, and it was usually said they were before the Moon, according unto that of *Seneca*, *Sydus post veteres Arcades editum*; and that of *Ovid*, *Lunâ gens prior illa fuit*. But this as *Censorinus* observeth, must not be taken grosly, as though they were existent before that Luminary; but were so esteemed, because they observed a set course of year, before the *Greeks* conformed their year unto the course and motion of the Moon.

Thus the Heathens affording no satisfaction herein, they are most likely to manifest this truth, who have been acquainted with Holy Scripture, and the sacred Chronology delivered by *Moses*, who distinctly sets down this account, computing by certain intervails, by memorable *Æras*, *Epoches*, or terms of time. As from the Creation unto the flood, from thence unto *Abraham*, from *Abraham* unto the departure from *Egypt*, etc. Now in this number have only been *Samaritans*, *Jews* and *Christians*. For the *Jews* they agree not in their accounts, as *Bodine* in his method of History hath observed out of *Baal Seder*, *Rabbi Nassom*, *Gersom*, and others; in whose compute the age of the World is not yet 5400 years. The same is more evidently observable from the two most learned *Jews*, *Philo* and *Josephus*; who very much differ in the accounts of time, and variously sum up these Intervails assented unto by all. Thus *Philo* from the departure out of *Egypt* unto the building of the Temple, accounts but 920 years, but *Josephus* sets down 1062. *Philo* from the building of the Temple to its destruction 440. *Josephus* 470. *Philo* from the Creation to the Destruction of the Temple 3373, but *Josephus* 3513. *Philo*

Different accounts upon Scripture concerning the Age of the World.

from the Deluge to the Destruction of the Temple 1718, but *Josephus* 1913. In which Computes there are manifest disparities, and such as much divide the concordance and harmony of times. CHAP. I

For the *Samaritans*; their account is different from these or any others; for they account from the Creation to the Deluge, but 1302 years; which cometh to pass upon the different account of the ages of the Patriarks set down when they begat children. For whereas the *Hebrew*, *Greek* and *Latin* texts account *Jared* 162 when he begat *Enoch*, they account but 62, and so in others. Now the *Samaritans* were no incompetent Judges of times and the Chronology thereof; for they embraced the five books of *Moses*, and as it seemeth, preserved the Text with far more integrity then the *Jews*; who as *Tertullian*, *Chrysostom*, and others observe, did several wayes corrupt the same, especially in passages concerning the prophesies of Christ; So that as *Jerom* professeth, in his translation he was fain sometime to relieve himself by the *Samaritan* Pentateuch; as amongst others in that Text, *Deuteronomy* 27. *Maledictus omnis qui non permanserit in omnibus quæ scripta sunt in libro Legis.* From hence Saint *Paul* inferreth there is no justification by the Law, and urgeth the Text according to the Septuagint. Now the Jews to afford a latitude unto themselves, in their copies expunged the word כל or Syncategorematical term *omnis*: wherein lieth the strength of the Law, and of the Apostles argument; but the *Samaritan* Bible retained it right, and answerable unto what the Apostle had urged. *Gal.* 3.

As for Christians from whom we should expect the exactest and most concurring account, there is also in them a manifest disagreement, and such as is not

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easily reconciled. For first, the Latins accord not in their account: to omit the calculation of the Ancients, of *Austin*, *Bede*, and others, the Chronology of the Moderns doth manifestly dissent. *Josephus Scaliger*, whom *Helvicus* seems to follow, accounts the Creation in 765 of the *Julian* period; and from thence unto the Nativity of our Saviour alloweth 3947 years; but *Dionysius Petavius* a learned Chronologer dissenteth from this compute almost 40 years; placing the Creation in the 730 of the *Julian* period, and from thence unto the Incarnation accounteth 3983 years.

For the Greeks; their accounts are more anomalous: for if we recur unto ancient computes, we shall find that *Clemens Alexandrinus*, an ancient Father and *Præceptor* unto *Origen*, accounted from the Creation unto our Saviour, 5664 years; for in the first of his Stromaticks, he collecteth the time from *Adam* unto the death of *Commodus* to be 5858 years; now the death of *Commodus* he placeth in the year after Christ 194, which number deducted from the former, there remaineth 5664. *Theophilus* Bishop of *Antioch* accounteth unto the Nativity of Christ 5515, deduceable from the like way of compute, for in his first book *ad Autolychum*, he accounteth from *Adam* unto *Aurelius Verus* 5695 years; now that Emperour died in the year of our Lord 180, which deducted from the former sum, there remaineth 5515. *Julius Africanus*, an ancient Chronologer, accounteth somewhat less, that is, 5500. *Eusebius*, *Orosius* and others dissent not much from this, but all exceed five thousand.

The latter compute of the Greeks, as *Petavius* observeth, hath been reduced unto two or three accounts. The first accounts unto our Saviour 5501, and this hath been observed by *Nicephorus*, *Theo-*

phanes, and *Maximus*. The other accounts 5509; and this of all at present is generally received by the Church of *Constantinople*, observed also by the *Moscovite*, as I have seen in the date of the Emperors letters; wherein this year of ours 1645 is from the year of the world 7154, which doth exactly agree unto this last account 5509, for if unto that sum be added 1645, the product will be 7154, by this Chronology are many Greek Authors to be understood; and thus is *Martinus Crusius* to be made out, when in his Turcogrecian history he delivers, the City of *Constantinople* was taken by the Turks in the year ϛϡξα; that is, 6961. Now according unto these Chronologists, the Prophecy of *Elias* the Rabbin, so much in request with the Jews, and in some credit also with Christians, that the world should last but six thousand years; unto these I say, it hath been long and out of memory disproved, for the Sabbatical and 7000 year wherein the world should end (as did the Creation on the seventh day) unto them is long ago expired; they are proceeding in the eight thousand year, and numbers exceeding those days which men have made the types and shadows of these. But certainly what *Marcus Leo* the Jew conceiveth of the end of the heavens, exceedeth the account of all that ever shall be; for though he conceiveth the Elemental frame shall end in the Seventh or Sabbatical Millenary, yet cannot he opinion the heavens and more durable part of the Creation shall perish before seven times seven, or 49, that is, the Quadrant of the other seven, and perfect Jubilee of thousands.

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By what account the world hath lasted 7154 years.

Thus may we observe the difference and wide dissent of mens opinions, and thereby the great incertainty in this establishment. The Hebrews not only dissenting

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from the Samaritans, the Latins from the Greeks, but every one from another. Insomuch that all can be in the right it is impossible; that any one is so, not with assurance determinable. And therefore as *Petavius* confesseth, to effect the same exactly without inspiration it is impossible, and beyond the Arithmetick of any but God himself. And therefore also what satisfaction may be obtained from those violent disputes, and eager enquirers in what day of the month the world began either of March or October; likewise in what face or position of the Moon, whether at the prime or full, or soon after, let our second and serious considerations determine.

The cause of so different accounts about the age of the world.

Now the reason and ground of this dissent, is the unhappy difference between the Greek and Hebrew Editions of the Bible, for unto these two Languages have all translations conformed; the holy Scripture being first delivered in Hebrew, and first translated into Greek. For the Hebrew; it seems the primitive and surest text to rely on, and to preserve the same entire and uncorrupt there hath been used the highest caution humanity could invent. For as *R. Ben. Maimon* hath declared, if in the copying thereof one letter were written twice, or if one letter but touched another, that copy was not admitted into their Synagogues, but only allowable to be read in Schools and private families. Neither were they careful only in the exact number of their Sections of the Law, but had also the curiosity to number every word, and affixed the account unto their several books. Notwithstanding all which, divers corruptions ensued, and several depravations slipt in, arising from many and manifest grounds, as hath been exactly noted by *Morinus* in his preface unto the Septuagint.

Corruption even in the Hebrew Text of the Bible.

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As for the Septuagint, it is the first and most ancient Translation; and of greater antiquity than the Chaldee version; occasioned by the request of *Ptolomeus Philadelphus*, King of *Egypt*, for the ornament of his memorable Library; unto whom the high Priest addressed six Jews out of every Tribe, which amounteth unto 72; and by these was effected that Translation we usually term the Septuagint, or Translation of seventy. Which name, however it obtain from the number of their persons, yet in respect of one common Spirit, it was the Translation but as it were of one man; if as the story relateth, although they were set apart and severed from each other, yet were their Translations found to agree in every point, according as is related by *Philo* and *Josephus*; although we find not the same in *Aristæas*, who hath expresly treated thereof. But of the Greek compute there have passed some learned dissertations not many years ago, wherein the learned *Isacius Vossius* makes the nativity of the world to anticipate the common account one thousand four hundred and forty years.

The Credit of the Septuagint translation.

Aristeas ad Philocratorem de 72 interpretibus.

This Translation in ancient times was of great authority, by this many of the Heathens received some notions of the Creation and the mighty works of God; This in express terms is often followed by the Evangelists, by the Apostles, and by our Saviour himself in the quotations of the Old Testament. This for many years was used by the Jews themselves, that is, such as did Hellenize and dispersedly dwelt out of Palestine with the Greeks; and this also the succeeding Christians and ancient Fathers observed; although there succeeded other Greek versions, that is, of *Aquila*, *Theodosius* and *Symmachus*; for the Latin translation of *Jerom*, called now the Vulgar, was about 800 years

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after the Septuagint; although there was also a Latin translation before, called the Italick version. Which was after lost upon the general reception of the translation of Saint *Jerom*. Which notwithstanding (as he himself acknowledgeth) had been needless, if the Septuagint copys had remained pure, and as they were first translated. But, (beside that different copys were used, that *Alexandria* and *Egypt* followed the copy of *Hesychius*, *Antioch* and *Constantinople* that of *Lucian* the Martyr, and others that of *Origen*) the Septuagint was much depraved, not only from the errors of Scribes, and the emergent corruptions of time, but malicious contrivance of the Jews; as *Justin Martyr* hath declared, in his learned dialogue with *Tryphon*, and *Morinus* hath learnedly shewn from many confirmations.

Præfat. in Paralipom.

De Hebræi et Græci textus sinceritate.

Whatsoever Interpretations there have been since, have been especially effected with reference unto these, that is, the Greek and Hebrew text, the Translators sometimes following the one, sometimes adhering unto the other, according as they found them consonant unto truth, or most correspondent unto the rules of faith. Now however it cometh to pass, these two are very different in the enumeration of Genealogies, and particular accounts of time; for in the second intervail, that is, between the Flood and *Abraham*, there is by the Septuagint introduced one *Cainan* to be the son of *Arphaxad* and father of *Salah*; whereas in the Hebrew there is no mention of such a person, but *Arphaxad* is set down to be the father of *Salah*. But in the first intervail, that is, from the Creation unto the Flood, their disagreement is more considerable; for therein the Greek exceedeth the Hebrew, and common account almost 600 years. And 'tis indeed a thing not very strange, to be at the difference of a third part, in

so large and collective an account, if we consider how differently they are set forth in minor and less mistakable numbers. So in the Prophesie of *Jonah*, both in the Hebrew and Latin text, it is said, Yet forty dayes and *Ninevy* shall be overthrown: But the Septuagint saith plainly, and that in letters at length, τρεῖς ἡμέρας that is, yet three dayes and *Ninevy* shall be destroyed. Which is a difference not newly crept in, but an observation very ancient, discussed by *Austin* and *Theodoret*, and was conceived an error committed by the Scribe. Men therefore have raised different computes of time, according as they have followed their different texts; and so have left the history of times far more perplexed than Chronology hath reduced. CHAP. I

Again, However the texts were plain, and might in their numerations agree, yet were there no small difficulty to set down a determinable Chronology, or establish from whence any fixed point of time. For the doubts concerning the time of the Judges are inexplicable; that of the Reigns and succession of Kings is as perplexed; it being uncertain whether the years both of their lives and reigns ought to be taken as compleat, or in their beginning and but currant accounts. Nor is it unreasonable to make some doubt whether in the first ages and long lives of our fathers, *Moses* doth not sometime account by full and round numbers, whereas strictly taken they might be some few years above or under; as in the age of *Noah*, it is delivered to be just five hundred when he begat *Sem*; whereas perhaps he might be somewhat above or below that round and compleat number. For the same way of speech is usual in divers other expressions: Thus do we say the Septuagint, and using the full and articulate number, do write the Translation of Seventy; whereas

CHAP. I

we have shewn before, the precise number was Seventy two. So is it said that Christ was three days in the grave; according to that of *Mathew*, as *Jonas* was three days and three nights in the Whales belly, so shall the Son of man be three days and three nights in the heart of the earth: which notwithstanding must be taken Synecdochically; or by understanding a part for an whole day; for he remained but two nights in the grave; for he was buried in the afternoon of the first day, and arose very early in the morning on the third; that is, he was interred in the eve of the Sabbath, and arose in the morning after it.

Moreover although the number of years be determined and rightly understood, and there be without doubt a certain truth herein; yet the text speaking obscurely or dubiously, there is oft-times no slender difficulty at what point to begin or terminate the account. So when it is said *Exod.* 12. the sojourning of the children of *Israel* who dwelt in *Egypt* was 430 years, it cannot be taken strictly, and from their first arrival into Egypt, for their habitation in that land was far less; but the account must begin from the Covenant of God with *Abraham*, and must also comprehend their sojourn in the land of *Canaan*, according as is expressed, *Gal.* 3. The Covenant that was confirmed before of God in Christ, the Law which was 430 years after cannot disanul. Thus hath it also happened in the account of the 70 years of their captivity, according to that of *Jeremy*, This whole land shall be a desolation, and these nations shall serve the King of *Babylon* 70 years. Now where to begin or end this compute, ariseth no small difficulties; for there were three remarkable captivities and deportations of the Jews. The first was in the third or fourth year

Chap. 20.

of *Joachim*, and first of *Nabuchodonozor*, when *Daniel* was carried away; the second in the reign of *Ieconiah*, and the eighth year of the same King; the third and most deplorable to the reign of *Zedechias* and in the nineteenth year of *Nabuchodonozor*, whereat both the Temple and City were burned. Now such is the different conceit of these times, that men have computed from all; but the probablest account and most concordant unto the intention of *Ieremy*, is from the first of *Nabuchodonozor* unto the first of King *Cyrus* over *Babylon*; although the Prophet *Zachary* accounteth from the last. O Lord of hosts, How Long! Wilt thou not have mercy on *Ierusalem*, against which thou hast had indignation these threescore and ten years? for he maketh this expostulation in the second year of *Darius Histaspes*, wherein he prophesied, which is about eighteen years in account after the other. CHAP. I *Chap.* 1. 12.

Thus also although there be a certain truth therein, yet is there no easie doubt concerning the seventy weeks, or seventy times seven years of *Daniel*; whether they have reference unto the nativity or passion of our Saviour, and especially from whence, or what point of time they are to be computed. For thus is it delivered by the Angel *Gabriel*: Seventy weeks are determined upon the people; and again in the following verse: Know therefore and understand, that from the going forth of the Commandment to restore and to build *Ierusalem* unto the Messias the Prince, shall be seven weeks, and threescore and two weeks, the street shall be built again, and the wall even in troublesome times; and after threescore and two weeks shall Messiah be cut off. Now the going out of the Commandment to build the City, being the point from whence to compute, there is no slender controversie when to *The difficulties of* Daniels 70 *Weeks.*

CHAP. I

begin. For there are no less than four several Edicts to this effect, the one in the first year of *Cyrus*, the other in the second of *Darius*, the third and fourth in the seventh, and in the twentieth of *Artaxerxes Longimanus*; although as *Petavius* accounteth, it best accordeth unto the twenty year of *Artaxerxes*, from whence *Nehemiah* deriveth his Commission. Now that computes are made uncertainly with reference unto Christ, it is no wonder, since I perceive the time of his Nativity is in controversie, and no less his age at his Passion. For *Clemens* and *Tertullian* conceive he suffered at thirty; but *Irenæus* a Father neerer his time, is further off in his account, that is, between forty and fifty.

Of our Blest. Saviours age at his Passion.

Longomontanus a late Astronomer, endeavours to discover this secret from Astronomical grounds, that is, the Apogeum of the Sun; conceiving the Excentricity invariable, and the Apogeum yearly to move one scruple, two seconds, fifty thirds, etc. Wherefore if in the time of *Hipparchus*, that is, in the year of the *Iulian* period 4557 it was in the fifth degree of *Gemini*, and in the daies of *Tycho Brahe*, that is in the year of our Lord 1588, or of the world 5554, the same was removed unto the fift degree of *Cancer*; by the proportion of its motion, it was at the Creation first in the beginning of *Aries*, and the Perigeum or nearest point in *Libra*. But this conceit how ingenious or subtile soever, is not of satisfaction; it being not determinable, or yet agreed in what time precisely the Apogeum absolveth one degree, as *Petavius* hath also delivered.

De Doctrina temporum l. 4.

Lastly, However these or other difficulties intervene, and that we cannot satisfie our selves in the exact compute of time, yet may we sit down with the common and usual account; nor are these differences deroga-

tory unto the Advent or Passion of Christ, unto which indeed they all do seem to point, for the Prophecies concerning our Saviour were indefinitely delivered before that of *Daniel*; so was that pronounced unto *Eve* in paradise, that after of *Balaam*, those of *Isaiah* and the Prophets, and that memorable one of *Iacob*, the Scepter shall not depart from *Israel* untill *Shilo* come; which time notwithstanding it did not define at all. In what year therefore soever, either from the destruction of the Temple, from the re-edifying thereof, from the flood, or from the Creation he appeared, certain it is, that in the fulness of time he came. When he therefore came is not so considerable, as that he is come: in the one there is consolation, in the other no satisfaction. The greater Quere is, when he will come again; and yet indeed it is no Quere at all: for that is never to be known, and therefore vainly enquired: 'tis a professed and authentick obscurity, unknown to all but to the omniscience of the Almighty. Certainly the ends of things are wrapt up in the hands of God, he that undertakes the knowledge thereof, forgets his own beginning, and disclaims his principles of earth. No man knows the end of the world, nor assuredly of any thing in it: God sees it, because unto his Eternity it is present; he knoweth the ends of us, but not of himself: and because he knows not this, he knoweth all things, and his knowledge is endless, even in the object of himself.

CHAP. I

CHAP. II

CHAPTER II

Of mens Enquiries in what season or Point of the Zodiack it began, that as they are generally made, they are in vain, and as particularly, uncertain.

CONCERNING the Seasons, that is, the quarters of the year, some are ready to enquire, others to determine, in what season, whether in the Autumn, Spring, Winter or Summer the World had its beginning. Wherein we affirm, that as the question is generally, and in respect of the whole earth proposed, it is with manifest injury unto reason in any particular determined; because when ever the world had its beginning it was created in all these four. For, as we have elsewhere delivered, whatsoever sign the Sun possesseth (whose recess or vicinity defineth the quarters of the year) those four seasons were actually existent; it being the nature of that Luminary to distinguish the several seasons of the year; all which it maketh at one time in the whole earth, and successively in any part thereof. Thus if we suppose the Sun created in Libra, in which sign unto some it maketh Autumn; at the same time it had been Winter unto the Northern-pole, for unto them at that time the Sun beginneth to be invisible, and to shew it self again unto the Pole of the South. Unto the position of a right Sphere or directly under the Æquator, it had been Summer; for unto that situation the Sun is at that time vertical. Unto the latitude of Capricorn, or the Winter Solstice it had been Spring; for unto that position it had been in a middle point, and that

The world began in all the four quarters of the year.

of ascent, or approximation, but unto the latitude of Cancer or the Summer Solstice it had been Autumn; for then had it been placed in a middle point, and that of descent, or elongation. CHAP. II

And if we shall take it literally what *Moses* described popularly, this was also the constitution of the first day. For when it was evening unto one longitude, it was morning unto another; when night unto one, day unto another. And therefore that question, whether our Saviour shall come again in the twilight (as is conceived he arose) or whether he shall come upon us in the night, according to the comparison of a thief, or the *Jewish* tradition, that he will come about the time of their departure out of *Ægypt*, when they eat the Passover, and the Angel passed by the doors of their houses; this Quere I say needeth not further dispute. For if the earth be almost every where inhabited, and his coming (as Divinity affirmed) must needs be unto all; then must the time of his appearance be both in the day and night. For if unto *Jerusalem*, or what part of the world soever he shall appear in the night, at the same time unto the *Antipodes*, it must be day; if twilight unto them, broad day unto the *Indians*; if noon unto them, yet night unto the *Americans*; and so with variety according unto various habitations, or different positions of the Sphere, as will be easily conceived by those who understand the affections of different habitations, and the conditions of *Antœci*, *Periœci*, and *Antipodes*. And so although he appear in the night, yet may the day of Judgement or Dooms-day well retain that name; for that implieth one revolution of the Sun, which maketh the day and night, and that one natural day. And yet to speak strictly, if (as the Apostle affirmeth) Νυχθήμερον

CHAP. II we shall be changed in the twinckling of an eye (and as the Schools determine) the destruction of the world shall not be successive but in an instant; we cannot properly apply thereto the usual distinctions of time; called that twelve hours, which admits not the parts thereof, or use at all the name of time, when the nature thereof shall perish.

But if the enquiry be made unto a particular place, and the question determined unto some certain Meridian; as namely, unto *Mesopotamia* wherein the seat of paradice is presumed, the Query becomes more reasonable, and is indeed in nature also determinable. Yet positively to define that season, there is no slender difficulty; for some contend that it began in the Spring; as (beside *Eusebius*, *Ambrose*, *Bede*, and *Theodoret*) some few years past *Henrico Philippi* in his Chronology of the Scripture. Others are altogether for Autumn; and from hence do our Chronologers commence their compute; as may be observed in *Helvicus*, *Jo. Scaliger*, *Calvisius*, and *Petavius*.

CHAPTER III

Of the Divisions of the seasons and four Quarters of the year, according unto Astronomers and Physitians; that the common compute of the Ancients, and which is still retained by some is very questionable.

AS for the divisions of the year, and the quartering out this remarkable standard of time, there have passed especially two distinctions; the first in frequent use with Astronomers, according to the cardinal intersections of the Zodiack, that is,

the two Æquinoctials and both the Solstitial points; defining that time to be the Spring of the year, wherein the Sun doth pass from the Æquinox of Aries unto the Solstice of Cancer; the time between the Solstice and the Æquinox of Libra, Summer; from thence unto the Solstice of Capricornus, Autumn; and from thence unto the Æquinox of Aries again, Winter. Now this division although it be regular and equal, is not universal; for it includeth not those latitudes which have the seasons of the year double; as have the inhabitants under the Æquator, or else between the Tropicks. For unto them the Sun is vertical twice a year, making two distinct Summers in the different points of verticality. So unto those which live under the Æquator, when the sun is in the Æquinox it is Summer, in which points it maketh Spring or Autumn unto us; and unto them it is also Winter when the Sun is in either Tropick; whereas unto us it maketh always Summer in the one. And the like will happen unto those habitations, which are between the Tropicks and the Æquator. CHAP. III

Between the Tropicks two Summers in a year.

A second and more sensible division there is observed by *Hippocrates*, and most of the ancient *Greeks*, according to the rising and setting of divers stars; dividing the year, and establishing the account of seasons from usual alterations, and sensible mutations in the air, discovered upon the rising and setting of those stars, accounting the Spring from the Æquinoxial point of Aries; from the rising of the Pleiades, or the several stars on the back of Taurus, Summer; from the rising of Arcturus, a star between the thighs of Bootes, Autumn; and from the setting of the Pleiades, Winter. Of these divisions because they were unequal, they were fain to subdivide the two larger portions, that is of the

CHAP. III Summer and Winter quarters; the first part of the Summer they named *θέρος*, the second unto the rising of the Dog-star, *ὥρα*, from thence unto the setting of Arcturus, *ὀπώρα*. The Winter they divided also into three parts; the first part, or that of seed time they named *σπόρετον*, the middle or proper Winter, *χειμὼν*, the last, which was their planting or grafting time *φυταλίαν*. This way of division was in former ages received, is very often mentioned in Poets, translated from one Nation to another; from the *Greeks* unto the *Latines* as is received by good Authors; and delivered by Physitians, even unto our times.

Now of these two, although the first in some latitude may be retained, yet is not the other in any to be admitted. For in regard of time (as we elsewhere declare) the stars do vary their longitudes, and consequently the times of their ascension and descension. That star which is the term of numeration, or point from whence we commence the account, altering his site and longitude in process of time, and removing from West to East, almost one degree in the space of 72 years, so that the same star, since the age of *Hippocrates* who used this account, is removed in *consequentia* about 27 degrees. Which difference of their longitudes, doth much diversifie the times of their ascents, and rendereth the account unstable which shall proceed thereby.

Again, In regard of different latitudes, this cannot be a setled rule, or reasonably applied unto many Nations. For whereas the setting of the Pleiades or seven stars, is designed the term of Autumn, and the beginning of Winter; unto some latitudes these stars do never set, as unto all beyond 67 degrees. And if in several and far distant latitudes we observe

the same star as a common term of account unto both, CHAP. III
we shall fall upon an unexpected, but an unsufferable absurdity; and by the same account it will be Summer unto us in the North, before it be so unto those, which unto us are Southward, and many degrees approaching nearer the Sun. For if we consult the Doctrine of the sphere, and observe the ascension of the Pleiades, which maketh the beginning of Summer, we shall discover that in the latitude of 40, these stars arise in the 16 degree of Taurus; but in the latitude of 50, they ascend in the eleventh degree of the same sign, that is, 5 dayes sooner; so shall it be Summer unto *London*, before it be unto *Toledo*, and begin to scorch in *England*, before it grow hot in *Spain*.

This is therefore no general way of compute, nor reasonable to be derived from one Nation unto another; the defect of which consideration hath caused divers errors in Latine poets, translating these expressions from the *Greeks*; and many difficulties even in the *Greeks* themselves; which living in divers latitudes, yet observed the same compute. So that to make them out, we are fain to use distinctions; sometime computing cosmically what they intended heliacally: and sometime in the same expression accounting the rising heliacally, the setting cosmically. Otherwise it will be hardly made out, what is delivered by approved Authors; and is an observation very considerable unto those which meet with such expressions, as they are very frequent in the poets of elder times, especially *Hesiod*, *Aratus*, *Virgil*, *Ovid*, *Manilius*; and Authors Geoponical, or which have treated *de re rustica*, as *Constantine*, *Marcus Cato*, *Columella*, *Palladius* and *Varro*.

Lastly, The absurdity in making common unto many Nations those considerations whose verity is but parti-

CHAP. III

cular unto some, will more evidently appear, if we examine the Rules and Precepts of some one climate, and fall upon consideration with what incongruity they are transferrible unto others. Thus is it advised by *Hesiod.*

Pleiadibus Atlante natis orientibus
Incipe messem, Arationem vero occidentibus.

Implying hereby the Heliacal ascent and Cosmical descent of those stars. Now herein he setteth down a rule to begin harvest at the arise of the Pleiades; which in his time was in the beginning of *May.* This indeed was consonant unto the clime wherein he lived, and their harvest began about that season: but is not appliable unto our own, for therein we are so far from expecting an harvest, that our Barley-seed is not ended. Again, correspondent unto the rule of *Hesiod*, *Virgil* affordeth another,

Ante tibi Eoæ Atlantides abscondantur,
Debita quam sulcis committas semina.

Understanding hereby their Cosmical descent, or their setting when the Sun ariseth, and not their Heliacal obscuration, or their inclusion in the lustre of the Sun, as *Servius* upon this place would have it; for at that time these stars are many signs removed from that luminary. Now herein he strictly adviseth, not to begin to sow before the setting of these stars; which notwithstanding without injury to agriculture, cannot be observed in *England*; for they set unto us about the 12 of November, when our Seed-time is almost ended.

And this diversity of clime and cœlestial observations, precisely observed unto certain stars and moneths, hath not only overthrown the deductions of one Nation

to another, but hath perturbed the observation of festivities and statary Solemnities, even with the *Jews* themselves. For unto them it was commanded that at their entrance into the land of *Canaan*, in the fourteenth of the first moneth (that is *Abib* or *Nisan* which is Spring with us) they should observe the celebration of the Passover; and on the morrow after, which is the fifteenth day, the feast of unleavened bread; and in the sixteenth of the same moneth, that they should offer the first sheaf of the harvest. Now all this was feasible and of an easie possibility in the land of *Canaan*, or latitude of *Jerusalem*; for so it is observed by several Authors in later times; and is also testified by holy Scripture in times very far before. For when the children of *Israel* passed the river *Jordan*, it is delivered by way of parenthesis, that the river overfloweth its banks in the time of harvest; which is conceived the time wherein they passed; and it is after delivered, that in the fourteenth day they celebrated the Passover: which according to the Law of *Moses* was to be observed in the first moneth, or moneth of *Abib*. CHAP. III *Josh.* 3. *Josh.* 5.

And therefore it is no wonder, what is related by *Luke*, that the Disciples upon the *Deuteroproton*, as they passed by, plucked the ears of corn. For the *Deuteroproton* or second first Sabbath, was the first Sabbath after the Deutera or second of the Passover, which was the sixteenth of *Nisan* or *Abib*. And this is also evidenced from the received construction of the first and latter rain. I will give you the rain of your land in his due season, the first rain and the latter rain. For the first rain fell upon the seed-time about October, and was to make the seed to root, the latter was to fill the ear, and fell in Abib or March, the first moneth: according as is expressed. And he will cause *What the Sabbaton Deuteroproton*, Luk. 6. was. *Deut.* 11. *Joel* 2.

CHAP. III

to come down for you the rain, the former rain and the latter rain in the first moneth; that is the moneth of *Abib* wherein the Passover was observed. This was the Law of *Moses*, and this in the land of *Canaan* was well observed, according to the first institution: but since their dispersion and habitation in Countries, whose constitutions admit not such tempestivity of harvests; and many not before the latter end of Summer; notwithstanding the advantage of their Lunary account, and intercalary moneth Veader, affixed unto the beginning of the year, there will be found a great disparity in their observations; nor can they strictly and at the same season with their forefathers observe the commands of God.

To add yet further, those Geoponical rules and precepts of Agriculture which are delivered by divers Authors, are not to be generally received; but respectively understood unto climes whereto they are determined. For whereas one adviseth to sow this or that grain at one season, a second to set this or that at another, it must be conceived relatively, and every Nation must have its Country Farm; for herein we may observe a manifest and visible difference, not only in the seasons of harvest, but in the grains themselves. For with us Barley-harvest is made after wheat-harvest, but with the *Israelites* and *Ægyptians* it was otherwise; so is it expressed by way of priority, *Ruth* the 2. So *Ruth* kept fast by the maidens of *Boaz* to glean unto the end of Barley-harvest and of Wheat-harvest, which in the plague of hayl in *Ægypt* is more plainly delivered, *Exod.* 9. And the Flax and the Barley were smitten, for the Barley was in the ear and the Flax was bolled, but the Wheat and the Rye were not smitten, for they were not grown up.

And thus we see the account established upon the arise or descent of the stars can be no reasonable rule unto distant Nations at all, and by reason of their retrogression but temporary unto any one. Nor must these respective expressions be entertained in absolute considerations; for so distinct is the relation, and so artificial the habitude of this inferiour globe unto the superiour, and even of one thing in each unto the other, that general rules are dangerous, and applications most safe that run with security of circumstance. Which rightly to effect, is beyond the subtlety of sense, and requires the artifice of reason.

CHAPTER IV

Of some computation of days and deductions of one part of the year unto another.

FOURTHLY, There are certain vulgar opinions concerning days of the year, and conclusions popularly deduced from certain days of the moneth: men commonly believing the days increase and decrease equally in the whole year: which notwithstanding is very repugnant unto truth. For they increase in the moneth of March, almost as much as in the two moneths of January and February: and decrease as much in September, as they do in July and August. For the days increase or decrease according to the declination of the Sun, that is, its deviation Northward or Southward from the Æquator. Now this digression is not equal but near the Æquinoxial intersections, it is right and greater, near the Solstices more oblique and lesser. So from the eleventh of

That the days decrease and increase unequally.

CHAP. IV

March the vernal Æquinox, unto the eleventh of April the Sun declineth to the North twelve degrees; from the eleventh of April unto the eleventh of May but eight, from thence unto the fifteenth of June, or the Summer Solstice but three and a half: all which make twenty two degrees and an half, the greatest declination of the Sun.

And this inequality in the declination of the Sun in the Zodiack or line of life, is correspondent unto the growth or declination of man. For setting out from infancy we increase not equally, or regularly attain to our state or perfection: nor when we descend from our state, is our declination equal, or carrieth us with even paces unto the grave. For as *Hippocrates* affirmeth, a man is hottest in the first day of his life, and coldest in the last: his natural heat setteth forth most vigorously at first, and declineth most sensibly at last. And so though the growth of man end not perhaps until twenty one, yet is his stature more advanced in the first septenary than in the second, and in the second, more than in the third, and more indeed in the first seven years, than in the fourteen succeeding; for what stature we attain unto at seven years, we do sometimes but double, most times come short of at one and twenty. And so do we decline again: For in the latter age upon the Tropick and first descension from our solstice, we are scarce sensible of declination: but declining further, our decrement accelerates, we set apace, and in our last days precipitate into our graves. And thus are also our progressions in the womb, that is, our formation, motion, our birth or exclusion. For our formation is quickly effected, our motion appeareth later, and our exclusion very long after: if that be true which *Hippocrates* and *Avicenna* have declared,

The natural proportion of humane growth, etc. In the world,

and in the womb.

that the time of our motion is double unto that of formation, and that of exclusion treble unto that of motion. As if the Infant be formed at thirty five days, it moveth at seventy, and is born the two hundred and tenth day, that is, the seventh month; or if it receives not formation before forty five days, it moveth the ninetieth day, and is excluded in the two hundred and seventy, that is, the ninth month. CHAP. IV

There are also certain popular prognosticks drawn from festivals in the Calender, and conceived opinions of certain days in months; so is there a general tradition in most parts of *Europe*, that inferreth the coldness of succeeding winter from the shining of the Sun upon *Candlemas* day, or the Purification of the Virgin *Mary*, according to the proverbial distich,

Si Sol splendescat Mariâ purificante,
Major erit glacies post festum quam fuit ante.

So is it usual among us to qualifie and conditionate the twelve months of the year, answerably unto the temper of the twelve days in *Christmas*; and to ascribe unto March certain borrowed days from April; all which men seem to believe upon annual experience of their own, and the received traditions of their forefathers.

Now it is manifest, and most men likewise know, that the Calenders of these computers, and the accounts of these days are very different; the Greeks dissenting from the Latins, and the Latins from each other; the one observing the *Julian* or ancient account, as great *Britain* and part of *Germany*; the other adhering to the *Gregorian* or new account, as *Italy*, *France*, *Spain*, and the united Provinces of the Netherlands. Now this later account by ten days at least anticipateth the

CHAP. IV other; so that before the one beginneth the account, the other is past it; yet in the several calculations, the same events seem true, and men with equal opinion of verity, expect and confess a confirmation from them all. Whereby is evident the Oraculous authority of tradition, and the easie seduction of men, neither enquiring into the verity of the substance, nor reforming upon repugnance of circumstance.

And thus may divers easily be mistaken who superstitiously observe certain times, or set down unto themselves an observation of unfortunate months, or dayes, or hours; As did the *Egyptians*, two in every month, and the *Romans*, the days after the Nones, Ides and Calends. And thus the Rules of Navigators must often fail, setting down, as *Rhodiginus* observeth, suspected and ominous days in every month, as the first and seventh of March, the fift and sixt of April, the sixt, the twelfth and fifteenth of February. For the accounts hereof in these months are very different in our days, and were different with several Nations in Ages past; and how strictly soever the account be made, and even by the self-same Calender, yet is it possible that Navigators may be out. For so were the Hollanders, who passing Westward through *fretum le Mayre*, and compassing the Globe, upon their return into their own Country, found that they had lost a day. For if two men at the same time travel from the same place, the one Eastward, the other Westward round about the earth, and meet in the same place from whence the first set forth; it will so fall out, that he which hath moved Eastward against the diurnal motion of the Sun, by anticipating dayly something of its circle with his own motion, will gaine one day; but he that travelleth Westward, with the

motion of the Sun, by seconding its revolution, shall lose or come short a day. And therefore also upon these grounds that *Delos* was seated in the middle of the earth, it was no exact decision, because two Eagles let fly East and West by *Jupiter*, their meeting fell out just in the Island *Delos*. CHAP. IV

CHAPTER V

A Digression of the wisdom of God in the site and motion of the Sun.

HAVING thus beheld the ignorance of man in some things, his error and blindness in others, that is, in the measure of duration both of years and seasons, let us a while admire the Wisdom of God in this distinguisher of times, and visible Deity (as some have termed it) the Sun. Which though some from its glory adore, and all for its benefits admire, we shall advance from other considerations, and such as illustrate the artifice of its Maker. Nor do we think we can excuse the duty of our knowledge, if we only bestow the flourish of Poetry hereon, or those commendatory conceits which popularly set forth the eminency of this creature; except we ascend unto subtiler considerations, and such as rightly understood, convincingly declare the wisdom of the Creator. Which since a Spanish Physitian hath begun, we will enlarge with our deductions; and this we shall endeavour from two considerations; its proper situation, and wisely ordered motion. Valerius de Philos. *Sacr.*

And first we cannot pass over his providence, in that it moveth at all; for had it stood still, and were it fixed like the earth, there had been then no distinction

CHAP. V

of times, either of day or year, of Spring, of Autumn, of Summer, or of Winter; for these seasons are defined by the motions of the Sun; when that approacheth neare our Zenith, or vertical Point, we call it Summer, when furthest off, Winter, when in the middle spaces, Spring or Autumn, whereas remaining in one place these distinctions had ceased, and consequently the generation of all things depending on their vicissitudes; making in one hemisphere a perpetual Summer, in the other a deplorable and comfortless Winter. And thus had it also been continual day unto some, and perpetual night unto others; for the day is defined by the abode of the Sun above the Horizon, and the night by its continuance below; so should we have needed another Sun, one to illustrate our Hemisphere, a second to enlighten the other; which inconvenience will ensue in what site soever we place it, whether in the Poles, or the Æquator, or between them both; no spherical body of what bigness soever illuminating the whole sphere of another, although it illuminate something more than half of a lesser, according unto the doctrine of the Opticks.

What the natural day is.

His wisdom is again discernable, not only in that it moveth at all, and in its bare motion, but wonderful in contriving the line of its revolution; which is so prudently effected, that by a vicissitude in one body and light it sufficeth the whole earth, affording thereby a possible or pleasurable habitation in every part thereof; and this is the line Ecliptick; all which to effect by any other circle it had been impossible. For first, if we imagine the Sun to make his course out of the Ecliptick, and upon a line without any obliquity, let it be conceived within that Circle, that is either on the Æquator, or else on either side: (For if we

Every part of the Earth habitable.

should place it either in the Meridian or Colures, beside the subversion of its course from East to West, there would ensue the like incommodities.) Now if we conceive the sun to move between the obliquity of this Ecliptick in a line upon one side of the Æquator, then would the Sun be visible but unto one pole, that is the same which was nearest unto it. So that unto the one it would be perpetual day; unto the other perpetual night; the one would be oppressed with constant heat, the other with insufferable cold; and so the defect of alternation would utterly impugn the generation of all things; which naturally require a vicissitude of heat to their production, and no less to their increase and conservation. CHAP. V

But if we conceive it to move in the Æquator; first unto a parallel sphere, or such as have the pole for their Zenith, it would have made neither perfect day nor night. For being in the Æquator it would intersect their Horizon, and be half above and half beneath it: or rather it would have made perpetual night to both; for though in regard of the rational Horizon, which bisecteth the Globe into equal parts, the Sun in the Æquator would intersect the Horizon: yet in respect of the sensible Horizon (which is defined by the eye) the Sun would be visible unto neither. For if as ocular witnesses report, and some also write, by reason of the convexity of the Earth, the eye of man under the Æquator cannot discover both the poles; neither would the eye under the poles discover the Sun in the Æquator. Thus would there nothing fructifie either near or under them: The Sun being Horizontal to the poles, and of no considerable altitude unto parts a reasonable distance from them. Again, unto a right sphere, or such as dwell under the Æquator,

CHAP. V although it made a difference in day and night, yet would it not make any distinction of seasons: for unto them it would be constant Summer, it being alwaies vertical, and never deflecting from them: So had there been no fructification at all, and the Countries subjected would be as uninhabitable, as indeed antiquity conceived them.

Lastly, It moving thus upon the Æquator, unto what position soever, although it had made a day, yet could it have made no year: for it could not have had those two motions now ascribed unto it, that is, from East to West, whereby it makes the day, and likewise from West to East, whereby the year is computed. For according to received Astronomy, the poles of the Æquator are the same with those of the *Primum Mobile*. Now it is impossible that on the same circle, having the same poles, both these motions from opposite terms should be at the same time performed; all which is salved, if we allow an obliquity in his annual motion, and conceive him to move upon the Poles of the Zodiack, distant from these of the world 23 degrees and an half. Thus may we discern the necessity of its obliquity, and how inconvenient its motion had been upon a circle parallel to the Æquator, or upon the Æquator it self.

Now with what Providence this obliquity is determined, we shall perceive upon the ensuing inconveniences from any deviation. For first, if its obliquity had been less (as instead of twenty three degrees, twelve or the half thereof) the vicissitude of seasons appointed for the generation of all things, would surely have been too short; for different seasons would have hudled upon each other; and unto some it had not been much better than if it had moved on the Æquator.

But had the obliquity been greater than now it is, as double, or of 40 degrees; several parts of the earth had not been able to endure the disproportionable differences of seasons, occasioned by the great recess, and distance of the Sun. For unto some habitations the Summer would have been extream hot, and the Winter extream cold; likewise the Summer temperate unto some, but excessive and in extremity unto others, as unto those who should dwell under the Tropick of Cancer, as then would do some part of *Spain*, or ten degrees beyond, as *Germany*, and some part of *England*; who would have Summers as now the *Moors* of *Africa*. For the Sun would sometime be vertical unto them: but they would have Winters like those beyond the Artick Circle; for in that season the Sun would be removed above 80 degrees from them. Again, it would be temperate to some habitations in the Summer, but very extream in the Winter: temperate to those in two or three degrees beyond the Artick Circle, as now it is unto us; for they would be equidistant from that Tropick, even as we are from this at present. But the Winter would be extream, the Sun being removed above an hundred degrees, and so consequently would not be visible in their Horizon, no position of sphere discovering any star distant above 90 degrees, which is the distance of every Zenith from the Horizon. And thus if the obliquity of this Circle had been less, the vicissitude of seasons had been so small as not to be distinguished; if greater, so large and disproportionable as not to be endured. CHAP. V

Now for its situation, although it held this Ecliptick line, yet had it been seated in any other Orb, inconveniences would ensue of condition like the former; for had it been placed in the lowest sphere of the

CHAP. V

A competent distinction of seasons necessary, and why.

Moon, the year would have consisted but of one month; for in that space of time it would have passed through every part of the Ecliptick: so would there have been no reasonable distinction of seasons required for the generation and fructifying of all things; contrary seasons which destroy the effects of one another, so suddenly succeeding. Besides by this vicinity unto the earth, its heat had been intollerable; for if (as many affirm) there is a different sense of heat from the different points of its proper Orb, and that in the Apogeum or highest point (which happeneth in Cancer) it is not so hot under that Tropick, on this side the Æquator, as unto the other side in the Perigeum or lowest part of the Eccentrick (which happeneth in Capricornus) surely being placed in an Orb far lower, its heat would be unsufferable, nor needed we a fable to set the world on fire.

But had it been placed in the highest Orb, or that of the eighth sphere, there had been none but *Platoes* year, and a far less distinction of seasons; for one year had then been many, and according unto the slow revolution of that Orb which absolveth not his course in many thousand years, no man had lived to attain the account thereof. These are the inconveniences ensuing upon its situation in the extream orbs, and had it been placed in the middle orbs of the Planets, there would have ensued absurdities of a middle nature unto them.

Now whether we adhere unto the hypothesis of *Copernicus*, affirming the earth to move, and the Sun to stand still; or whether we hold, as some of late have concluded, from the spots in the Sun, which appear and disappear again; that besides the revolution it maketh with its Orbs, it hath also a dinetical motion, and

rowls upon its own Poles, whether I say we affirm these or no, the illations before mentioned are not thereby infringed. We therefore conclude this contemplation, and are not afraid to believe, it may be literally said of the wisdom of God, what men will have but figuratively spoken of the works of Christ; that if the wonders thereof were duly described, the whole world, that is, all within the last circumference, would not contain them. For as his Wisdom is infinite, so cannot the due expressions thereof be finite, and if the world comprise him not, neither can it comprehend the story of him. CHAP. V

CHAPTER VI

Concerning the vulgar opinion, that the Earth was slenderly peopled before the Flood.

BESIDE the slender consideration men of latter times do hold of the first ages, it is commonly opinioned, and at first thought generally imagined, that the earth was thinly inhabited, at least not remotely planted before the flood; whereof there being two opinions, which seem to be of some extremity, the one too largely extending, the other too narrowly contracting the populosity of those times; we shall not pass over this point without some enquiry into it.

Now for the true enquiry thereof, the means are as obscure as the matter, which being naturally to be explored by History, Humane or Divine, receiveth thereby no small addition of obscurity. For as for humane relations, they are so fabulous in *Deucalions* flood, that they are of little credit about *Ogyges* and

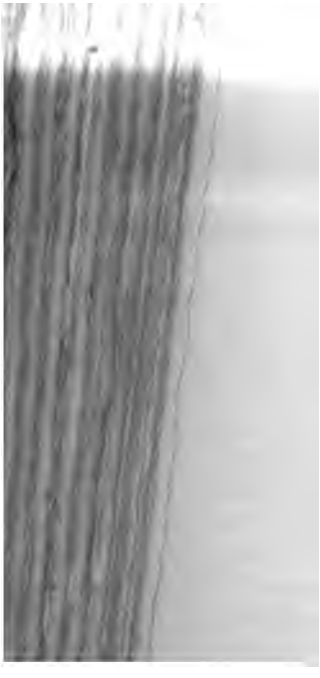
CHAP. VI *Noahs.* For the Heathens (as *Varro* accounteth) make three distinctions of time: the first from the beginning of the world unto the general Deluge of *Ogyges*, they term *Adelon*, that is, a time not much unlike that which was before time, immanifest and unknown; because thereof there is almost nothing or very obscurely delivered: for though divers Authors have made some mention of the Deluge, as *Manethon* the *Egyptian* Priest, *Xenophon* de æquivocis, *Fabius Pictor* de Aureo seculo, *Mar. Cato* de originibus, and *Archilochus* the Greek, who introduceth also the Testimony of *Moses* in his fragment *de temporibus*: yet have they delivered no account of what preceded or went before. *Josephus* I confess in his Discourse against *Appion* induceth the antiquity of the *Jews* unto the flood, and before from the testimony of humane Writers; insisting especially upon *Maseus* of *Damascus*, *Jeronimus Ægyptius*, and *Berosus*; and confirming the long duration of their lives, not only from these, but the authority of *Hesiod*, *Erathius*, *Hellanicus* and *Agesilaus*. *Berosus* the *Chaldean* Priest, writes most plainly, mentioning the city of *Enos*, the name of *Noah* and his Sons, the building of the Ark, and also the place of its landing. And *Diodorus Siculus* hath in his third book a passage, which examined, advanceth as high as *Adam*: for the *Chaldeans*, saith he, derive the Original of their Astronomy and letters forty three thousand years before the Monarchy of *Alexander* the Great: now the years whereby they computed the antiquity of their letters, being as *Xenophon* interprets to be accounted Lunary: the compute will arise unto the time of *Adam*. For forty three thousand Lunary years make about three thousand six hundred thirty four years, which answereth the Chronology of time

from the beginning of the world unto the reign of *Alexander*, as *Annius* of *Viterbo* computeth in his Comment upon *Berosus*. CHAP. VI

The second space or interval of time is accounted from the flood unto the first Olympiad, that is, the year of the world 3174, which extendeth unto the days of *Isaiah* the Prophet, and some twenty years before the foundation of *Rome*: this they term *Mythicon* or fabulous, because the account thereof, especially of the first part, is fabulously or imperfectly delivered. Hereof some things have been briefly related by the Authors above mentioned: more particularly by *Dares Phrygius*, *Dictys Cretensis*, *Herodotus*, *Diodorus Siculus*, and *Trogus Pompeius*; the most famous *Greek* Poets lived also in this interval, as *Orpheus*, *Linus*, *Musæus*, *Homer*, *Hesiod*; and herein are comprehended the grounds and first inventions of Poetical fables, which were also taken up by historical Writers, perturbing the *Chaldean* and *Egyptian* Records with fabulous additions; and confounding their names and stories, with their own inventions.

The third time succeeding until their present ages, they term *Historicon*, that is, such wherein matters have been more truly historified, and may therefore be believed. Of these times also have been written *Herodotus*, *Thucydides*, *Xenophon*, *Diodorus*; and both of these and the other preceding such as have delivered universal Histories or Chronologies; as (to omit *Philo*, whose Narrations concern the *Hebrews*) *Eusebius*, *Julius Africanus*, *Orosius*, *Ado* of *Vienna*, *Marianus Scotus*, *Historia tripartita*, *Urspergensis*, *Carion*, *Pineda*, *Salian*, and with us Sir *Walter Raleigh*.

Now from the first hereof that most concerneth us, we have little or no assistance; the fragments and



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tioned, yet are there many more to be presumed; nor when the Scripture in the line of *Seth* nominates but ten persons, are they to be conceived all that were of this generation: The Scripture singly delivering the holy line, wherein the world was to be preserved, first in *Noah*, and afterward in our Saviour. For in this line it is manifest there were many more born than are named, for it is said of them all, that they begat sons and daughters. And whereas it is very late before it is said they begat those persons which are named in the Scripture, the soonest at 65, it must not be understood that they had none before; but not any in whom it pleased God the holy line should be continued. And although the expression that they begat sons and daughters be not determined to be before or after the mention of these, yet must it be before in some; for before it is said that *Adam* begat *Seth* at the 130 year, it is plainly affirmed that *Cain* knew his wife, and had a son; which must be one of the daughters of *Adam*, one of those whereof it is after said, he begat sons and daughters. And so for ought can be disproved there might be more persons upon earth then are commonly supposed, when *Cain* slew *Abel*; nor the fact so hainously to be aggravated in the circumstance of the fourth person living. And whereas it is said upon the nativity of *Seth*, God hath appointed me another seed instead of *Abel*, it doth not imply he had no other all this while; but not any of that expectation, or appointed (as his name applies) to make a progression in the holy line; in whom the world was to be saved, and from whom he should be born, that was mystically slain in *Abel*.

CHAP. VI

Now our first ground to induce the numerosity of people before the flood, is the long duration of their

CHAP. VI lives, beyond 7, 8, and 9, hundred years. Which how it conduceth unto populosity we shall make but little doubt, if we consider there are two main causes of numerosity in any kind or species, that is, a frequent and multiparous way of breeding, whereby they fill the world with others, though they exist not long themselves; or a long duration and subsistence, whereby they do not only replenish the world with a new annumeration of others, but also maintain the former account in themselves. From the first cause we may observe examples in creatures oviparous, as Birds and Fishes; in vermiparous, as Flies, Locusts, and Gnats; in animals also viviparous, as Swine and Conies. Of the first there is a great example in the herd of Swine in *Galilee*, although an unclean beast, and forbidden unto the *Jews*. Of the other a remarkable one in *Athenus*, in the Isle *Astipalea*, one of the Cyclades now called *Stampalia*, wherein from two that were imported, the number so increased, that the Inhabitants were constrained to have recourse unto the Oracle *Delphos*, for an invention how to destroy them.

Others there are which make good the paucity of their breed with the length and duration of their daies, whereof there want not examples in animals uniparous: First, in bisulcous or cloven-hooft, as Camels, and Beeves, whereof there is above a million annually slain in *England*. It is also said of *Job*, that he had a thousand yoak of Oxen, and six thousand Camels; and of the children of *Israel* passing into the land of *Canaan*, that they took from the *Midianites* threescore and ten thousand Beeves; and of the Army of *Semiramis*, that there were therein one hundred thousand Camels. For Solipeds or firm-hoofed animals, as Horses, Asses, Mules, etc., they are also in mighty numbers, so it is

A Million of Beeves yearly killed in England.

delivered that *Job* had a thousand she Asses: that the *Midianites* lost sixty one thousand Asses. For Horses it is affirmed by *Diodorus*, that *Ninus* brought against the *Bactrians* two hundred eighty thousand Horses; after him *Semiramis* five hundred thousand Horses, and Chariots one hundred thousand. Even in creatures steril and such as do not generate, the length of life conduceth much unto the multiplicity of the species; for the number of Mules which live far longer then their Dams or Sires, in Countries where they are bred, is very remarkable, and far more common then Horses. CHAP. VI

For Animals multifidous, or such as are digitated or have several divisions in their feet, there are but two that are uniparous, that is, Men and Elephants; who though their productions be but single, are notwithstanding very numerous. The Elephant (as *Aristotle* affirmeth) carrieth the young two years, and conceiveth not again (as *Edvardus Lopez* affirmeth) in many after, yet doth their age requite this disadvantage; they living commonly one hundred, sometime two hundred years. Now although they be rare with us in *Europe*, and altogether unknown unto *America*, yet in the two other parts of the world they are in great abundance, as appears by the relation of *Gorcias ab Horto*, Physitian to the Viceroy at *Goa*, who relates that at one venation the King of *Sion* took four thousand; and is of opinion they are in other parts in greater number then herds of Beeves in *Europe*. And though this delivered from a *Spaniard* unacquainted with our Northern droves, may seem very far to exceed; yet must we conceive them very numerous, if we consider the number of teeth transported from one Country to another; they having only two great teeth, and those not falling or renewing.

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As for man, the disadvantage in his single issue is the same with these, and in the lateness of his generation somewhat greater then any; yet in the continual and not interrupted time thereof, and the extent of his days, he becomes at present, if not then any other species, at least more numerous then these before mentioned. Now being thus numerous at present, and in the measure of threescore, fourscore or an hundred years, if their dayes extended unto six, seven, or eight hundred, their generations would be proportionably multiplied; their times of generation being not only multiplied, but their subsistence continued. For though the great Grand-child went on, the *Petrucius* and first Original would subsist and make one of the world; though he outlived all the terms of consanguinity, and became a stranger unto his proper progeny. So by compute of Scripture *Adam* lived unto the ninth generation, unto the days of *Lamech* the Father of *Noah*; *Methuselah* unto the year of the flood; and *Noah* was contemporary unto all from *Enoch* unto *Abraham*. So that although some died, the father beholding so many descents, the number of Survivers must still be very great; for if half the men were now alive, which lived in the last Century, the earth would scarce contain their number. Whereas in our abridged and Septuagesimal Ages, it is very rare, and deserves a Distick to behold the fourth generation. *Xerxes* complaint still remaining; and what he lamented in his Army, being almost deplorable in the whole world; men seldom arriving unto those years whereby *Methuselah* exceeded nine hundred, and what *Adam* came short of a thousand, was defined long ago to be the age of man.

The term for that person from whom consanguineal relations are accounted, as in the Arbor civilis.

Mater ait natæ dic natæ filia, etc.

Now although the length of days conduceth mainly

unto the numerosity of mankind, and it be manifest from Scripture they lived very long, yet is not the period of their lives determinable, and some might be longer livers, than we account that any were. For (to omit that conceit of some, that *Adam* was the oldest man, in as much as he is conceived to be created in the maturity of mankind, that is, at 60, (for in that age it is set down they begat children) so that adding this number unto his 930, he was 21 years older than any of his posterity) that even *Methuselah* was the longest liver of all the children of *Adam*, we need not grant; nor is it definitively set down by *Moses*. Indeed of those ten mentioned in Scripture, with their severall ages it must be true; but whether those seven of the line of *Cain* and their progeny, or any of the sons or daughters posterity after them out-lived those, is not expressed in holy Scripture; and it will seem more probable, that of the line of *Cain* some were longer lived than any of *Seth*; if we concede that seven generations of the one lived as long as nine of the other. As for what is commonly alledged, that God would not permit the life of any unto a thousand, because (alluding unto that of *David*) no man should live one day in the sight of the Lord; although it be urged by divers, yet is it methinks an inference somewhat Rabbinicall; and not of power to perswade a serious examinator. CHAP. VI

Having thus declared how powerfully the length of lives conduced unto populosity of those times, it will yet be easier acknowledged if we descend to particularities, and consider how many in seven hundred years might descend from one man; wherein considering the length of their dayes, we may conceive the greatest number to have been alive together. And this that

CHAP. VI no reasonable spirit may contradict, we will declare with manifest disadvantage; for whereas the duration of the world unto the flood was above 1600 years, we will make our compute in less then half that time. Nor will we begin with the first man, but allow the earth to be provided of women fit for marriage the second or third first Centuries; and will only take as granted, that they might beget children at sixty, and at an hundred years have twenty, allowing for that number forty years. Nor will we herein single out *Methuselah*, or account from the longest livers, but make choice of the shortest of any we find recorded in the Text, excepting *Enoch*; who after he had lived as many years as there be days in the year, was translated at 365. And thus from one stock of seven hundred years, multiplying still by twenty, we shall find the product to be one thousand, three hundred forty seven millions, three hundred sixty eight thousand, four hundred and twenty.

Century	1	20.
	2	400.
	3	8000.
	4	160,000.
	5	3,200,000.
	6	46,000,000.
	7	1,280,000,000.
Product		1,347,368,420.

Now if this account of the learned *Petavius* will be allowed, it will make an unexpected encrease, and a larger number than may be found in *Asia*, *Africa* and *Europe*; especially if in *Constantinople*, the greatest City thereof, there be no more of Europe than *Botero* accounteth, seven hundred thousand souls. Which

duly considered, we shall rather admire how the earth contained its inhabitants, then doubt its inhabitation; and might conceive the deluge not simply penall, but in some way also necessary, as many have conceived of translations, if *Adam* had not sinned, and the race of man had remained upon earth immortal. CHAP. VI

Now whereas some to make good their longevity, have imagined that the years of their compute were Lunary; unto these we must reply: That if by a Lunary year they understand twelve revolutions of the Moon, that is 354 days, eleven fewer then in the Solary year; there will be no great difference; at least not sufficient to convince or extenuate the question. But if by a Lunary year they mean one revolution of the Moon, that is, a moneth, they first introduce a year never used by the Hebrews in their Civil accompts; and what is delivered before of the Chaldean years (as *Xenophon* gives a caution) was only received in the Chronology of their Arts. Secondly, they contradict the Scripture, which makes a plain enumeration of many moneths in the account of the Deluge; for so is it expressed in the Text. In the tenth moneth, in the first day of the moneth were the tops of the mountains seen: Concordant whereunto is the relation of humane Authors, *Inundationes plures fuere, prima novimestris inundatio terrarum sub prisco Ogyge. Meminisse hoc loco par est post primum diluvium Ogygi temporibus notatum, cum novem et amplius mensibus diem continua nox inumbrasset, Delon ante omnes terras radiis solis illuminatum sortitumque ex eo nomen.* And lastly, they fall upon an absurdity, for they make *Enoch* to beget children about six years of age. For whereas it is said he begat *Methuselah* at 65, if we shall account every moneth a year, he was at that time some

Xenophon de Æquivocis. Solinus.

CHAP. VI six years and an half, for so many moneths are contained in that space of time.

Having thus declared how much the length of mens lives conduced unto the populosity of their kind, our second foundation must be the large extent of time, from the Creation unto the Deluge, that is (according unto received computes about 1655 years) almost as long a time as hath passed since the nativity of our Saviour: and this we cannot but conceive sufficient for a very large increase, if we do but affirm what reasonable enquirers will not deny: That the earth might be as populous in that number of years before the flood, as we can manifest it was in the same number after. And whereas there may be conceived some disadvantage, in regard that at the Creation the original of mankind was in two persons, but after the flood their propagation issued at least from six; against this we might very well set the length of their lives before the flood, which were abbreviated after, and in half this space contracted into hundreds and threescores. Notwithstanding to equalize accounts, we will allow three hundred years, and so long a time as we can manifest from the Scripture. There were four men at least that begat children, *Adam*, *Cain*, *Seth*, and *Enos*; So shall we fairly and favourably proceed, if we affirm the world to have been as populous in sixteen hundred and fifty before the flood, as it was in thirteen hundred after. Now how populous and largely inhabited it was within this period of time, we shall declare from probabilities, and several testimonies of Scripture and humane Authors.

And first, To manifest the same neer those parts of the earth where the Ark is presumed to have rested, we have the relation of holy Scripture accounting the

genealogy of *Japhet*, *Cham* and *Sem*, and in this last, four descents unto the division of the earth in the days of *Peleg*, which time although it were not upon common compute much above an hundred years, yet were men at this time mightily increased. Nor can we well conceive it otherwise, if we consider they began already to wander from their first habitation, and were able to attempt so mighty a work as the building of a City and a Tower, whose top should reach unto the heavens. Whereunto there was required no slender number of persons, if we consider the magnitude thereof, expressed by some, and conceived to be *Turris Beli* in *Herodotus*; and the multitudes of people recorded at the erecting of the like or inferiour structures: for at the building of *Solomons* Temple there were threescore and ten thousand that carried burdens, and fourscore thousand hewers in the mountains, beside the chief of his officers three thousand and three hundred; and at the erecting of the Piramids in the reign of King *Cheops*, as *Herodotus* reports, there were *decem myriads*, that is an hundred thousand men. And though it be said of the *Egyptians*, *Porrum et cæpe nefas violare et frangere morsu*; yet did the summes expended in Garlick and Onyons amount unto no less then one thousand six hundred Talents. CHAP. VI Juvenal.

The first Monarchy or Kingdom of *Babylon* is mentioned in Scripture under the foundation of *Nimrod*, which is also recorded in humane history; as beside *Berosus*, in *Diodorus* and *Justine*, for *Nimrod* of the Scriptures is *Belus* of the Gentiles, and *Assur* the same with *Ninus* his successour. There is also mention of divers Cities, particularly of *Ninivey* and *Resen* expressed emphatically in the Text to be a great City. *Who* Nimrod *and* Assur *were.*

That other Countries round about were also peopled,

CHAP. VI

appears by the Wars of the Monarchs of *Assyria* with the *Bactrians*, *Indians*, *Scythians*, *Ethiopians*, *Armenians*, *Hyrcanians*, *Parthians*, *Persians*, *Susians*; they vanquishing (as *Diodorus* relateth) *Egypt*, *Syria*, and all *Asia* minor, even from *Bosphorus* unto *Tanais*. And it is said, that *Semiramis* in her expedition against the *Indians* brought along with her the King of *Arabia*. About the same time of the *Assyrian* Monarchy, do Authors place that of the *Sycionians* in *Greece*, and soon after that of the *Argives*, and not very long after, that of the *Athenians* under *Cecrops*; and within our period assumed are historified many memorable actions of the Greeks, as the expedition of the *Argonautes*, with the most famous Wars of *Thebes* and *Troy*.

That *Canaan* also and *Egypt* were well peopled far within this period, besides their plantation by *Canaan* and *Misraim*, appeareth from the history of *Abraham*, who in less then 400 years after the Flood, journied from *Mesopotamia* unto *Canaan* and *Egypt*, both which he found well peopled and policied into Kingdoms: wherein also in 430 years, from threescore and ten persons which came with *Jacob* into *Egypt*, he became a mighty Nation; for it is said, at their departure, there journeyed from *Rhamesis* to *Succoth* about six hundred thousand on foot, that were men, besides children. Now how populous the land from whence they came was, may be collected not only from their ability in commanding such subjections and mighty powers under them, but from the several accounts of that Kingdom delivered by *Herodotus*. And how soon it was peopled, is evidenced from the pillar of their King *Osyris*, with this inscription in *Diodorus*; *Mihi pater est Saturnus deorum junior, sum vero Osyris rex*

qui totum peragravi orbem usq; ad Indorum fines, ad eos quoq; sum profectus qui septentrioni subjacent usq; ad Istri fontes, et alias partes usq; ad Oceanum. Now according unto the best determinations *Osyris* was *Misraim*, and *Saturnus Egyptius* the same with *Cham*; after whose name *Egypt* is not only called in Scripture the land of *Ham*, but thus much is also testified by *Plutarch*; for in his Treatise *de Osyride*, he delivereth that *Egypt* was called *Chamia a Chamo Noe filio*, that is from *Cham* the son of *Noah*. And if according to the consent of ancient Fathers, *Adam* was buried in the same place where Christ was crucified, that is Mount *Calvary*, the first man ranged far before the Flood, and laid his bones many miles from that place, where its presumed he received them. And this migration was the greater, if as the text expresseth, he was cast out of the East-side of Paradise to till the ground; and as the Position of the Cherubines implieth, who were placed at the east end of the garden to keep him from the tree of life.

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Who Osyris *and* Saturnus Ægyptius *were.*

That the remoter parts of the earth were in this time inhabited is also induceable from the like testimonies; for (omitting the numeration of *Josephus*, and the genealogies of the Sons of *Noah*) that *Italy* was inhabited, appeareth from the Records of *Livie*, and *Dionysius Halicarnasseus*, the story of *Æneas*, *Evander* and *Janus*, whom *Annius* of *Viterbo*, and the Chorographers of *Italy*, do make to be the same with *Noah*. That *Sicily* was also peopled, is made out from the frequent mention thereof in *Homer*, the Records of *Diodorus* and others; but especially from a remarkable passage touched by *Aretius* and *Ranzanus* Bishop of *Lucerium*, but fully explained by *Thomas Fazelli* in his accurate History of *Sicily*; that is, from an ancient

CHAP. VI inscription in a stone at *Panormo*, expressed by him in its proper characters, and by a *Syrian* thus translated, *Non est alius Deus præter unum Deum, non est alius potens præter eundem Deum, neq; est alius victor præter eundem quem colimus Deum: Hujus turris præfectus est* Sapha *filius* Eliphat, *filii* Esau, *fratris* Jacob, *filii* Isaac, *filii* Abraham: *et turri quidem ipsi nomen est* Baych, *sed turri huic proximæ nomen est* Pharath. The antiquity of the inhabitation of *Spain* is also confirmable, not only from *Berosus* in the plantation of *Tubal*, and a City continuing yet in his name, but the story of *Gerion*, the travels of *Hercules* and his pillars: and especially a passage in *Strabo*, which advanceth unto the time of *Ninus*, thus delivered in his fourth book. The *Spaniards* (saith he) affirm that they have had Laws and Letters above six thousand years. Now the *Spaniards* or *Iberians* observing (as *Xenophon* hath delivered) *Annum quadrimestrem*, four moneths unto a year, this compute will make up 2000 solary years, which is about the space of time from *Strabo*, who lived in the days of *Augustus*, unto the reign of *Ninus*.

That *Mauritania* and the coast of *Africa* were peopled very soon, is the conjecture of many wise men, and that by the *Phœnicians*, who left their Country upon the invasion of *Canaan* by the *Israelites*. For beside the conformity of the *Punick* or *Carthaginian* language with that of *Phœnicia*, there is a pregnant and very remarkable testimony hereof in *Procopius*, who in his second *de bello Vandalico*, recordeth, that in a town of *Mauritania Tingitana*, there was to be seen upon two white Columns in the *Phœnician* language these ensuing words; *Nos Maurici sumus qui fugimus a facie Jehoschua filii Nunis prædatoris.* The fortunate Islands or *Canaries* were not unknown; for

so doth *Strabo* interpret that speech in *Homer* of *Proteus* unto *Menelaus*, CHAP. VI

Sed te qua terræ postremus terminus extat,
Elysium in Campum cœlestia numina ducunt.

The like might we affirm from credible histories both of *France* and *Germany*, and perhaps also of our own Country. For omitting the fabulous and *Trojan* original delivered by *Jeofrey* of *Monmouth*, and the express text of Scripture; that the race of *Japhet* did people the Isles of the *Gentiles*; the *Brittish* Original was so obscure in *Cæsars* time, that he affirmeth the Inland inhabitants were *Aborigines*, that is, such as reported that they had their beginning in the Island. That *Ireland* our neighbour Island was not long time without Inhabitants, may be made probable by sundry accounts; although we abate the Traditions of *Bartholanus* the *Scythian*, who arrived there three hundred years after the flood, or the relation of *Giraldus*; that *Cæsaria* the daughter of *Noah* dwelt there before.

Now should we call in the learned account of *Bochartus*, deducing the ancient names of Countries from *Phœnicians*, who by their plantations, discoveries, and sea negotiations, have left unto very many Countries, *Phœnician* denominations; the enquiry would be much shorter, and if *Spain* in the *Phœnician* Original, be but the region of *Conies*, *Lusitania*, or *Portugal* the Countrey of Almonds, if *Brittanica* were at first *Barata-naca*, or the land of Tin, and *Ibernia* or *Ireland*, were but *Ibernae*, or the farthest habitation; and these names imposed and dispersed by *Phœnician* Colonies in their several navigations; the Antiquity of habitations might be more clearly advanced. Bochart. Geog. *Sacr. part.* 2.

Thus though we have declared how largely the

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world was inhabited within the space of 1300 years, yet must it be conceived more populous then can be clearly evinced; for a greater part of the earth hath ever been peopled, then hath been known or described by Geographers, as will appear by the discoveries of all Ages. For neither in *Herodotus* or *Thucydides* do we find any mention of *Rome*, nor in *Ptolomy* of many parts of *Europe*, *Asia* or *Africa*. And because many places we have declared of long plantations of whose populosity notwithstanding or memorable actions we have no ancient story; if we may conjecture of these by what we find related of others, we shall not need many words, nor assume the half of 1300 years. And this we might illustrate from the mighty acts of the *Assyrians* performed not long after the flood; recorded by *Justine* and *Diodorus*; who makes relation of expeditions by Armies more numerous then have been ever since. For *Ninus* King of *Assyria* brought against the *Bactrians* 700000 foot, 200000 horse, 10600 Chariots. *Semiramis* his successor led against the *Indians* 1300000 foot, 500000 horse, 100000 Chariots, and as many upon Camels: And it is said, *Staurobates* the *Indian* King, met her with greater forces then she brought against him. All which was performed within less then four hundred years after the flood.

Now if any imagine the unity of their language did hinder their dispersion before the flood, we confess it some hindrance at first, but not much afterward. For though it might restrain their dispersion, it could not their populosity; which necessarily requireth transmigration and emission of Colonies; as we read of *Romans*, *Greeks*, *Phœnicians* in ages past, and have beheld examples thereof in our days. We may also observe that after the flood before the confusion of

tongues, men began to disperse: for it is said, they journeyed towards the East: and the Scripture it self expresseth a necessity conceived of their dispersion, for the intent of erecting the Tower is so delivered in the text, Lest we be scattered abroad upon the face of the earth. CHAP. VI

Again, If any apprehend the plantation of the earth more easie in regard of Navigation and shipping discovered since the flood, whereby the Islands and divided parts of the earth are now inhabited; he must consider, that whether there were Islands or no before the flood, is not yet determined, and is with probability denied by very learned Authors. *Whether any Islands before the Flood.*

Lastly, If we shall fall into apprehension that it was less inhabited, because it is said in the sixt of *Genesis* about a 120 years before the flood, and it came to pass that when men began to multiply upon the face of the earth. Beside that this may be only meant of the race of *Cain*, it will not import they were not multiplied before, but that they were at that time plentifully encreased; for so is the same word used in other parts of Scripture. And so is it afterward in the 9 Chapter said, that *Noah* began to be an husbandman, that is, he was so, or earnestly performed the Acts thereof; so it is said of our Saviour, that he began to cast them out that bought and sold in the Temple, that is, he actually cast them out, or with alacrity effected it.

Thus have I declared some private and probable conceptions in the enquiry of this truth; but the certainty hereof let the Arithmetick of the last day determine; and therefore expect no further belief than probability and reason induce. Only desire men would not swallow dubiosities for certainties, and receive as Principles points mainly controvertible; for

CHAP. VI we are to adhere unto things doubtful in a dubious and opinative way. It being reasonable for every man to vary his opinion according to the variance of his reason, and to affirm one day what he denied another. Wherein although at last we miss of truth; we die notwithstanding in harmless and inoffensive errors; because we adhere unto that, whereunto the examen of our reasons, and honest enquiries induce us.

CHAPTER VII

Of East, and West.

THE next shall be of East and West; that is, the proprieties and conditions ascribed unto Regions respectively unto those situations; which hath been the obvious conception of Philosophers and Geographers, magnifying the condition of *India*, and the Eastern Countries, above the setting and occidental Climates, some ascribing hereto the generation of gold, precious stones and spices, others the civility and natural endowments of men; conceiving the bodies of this situation to receive a special impression from the first salutes of the Sun, and some appropriate influence from his ascendent and oriental radiations. But these proprieties affixed unto bodies, upon considerations deduced from East, West, or those observable points of the sphere, how specious and plausible so ever, will not upon enquiry be justified from such foundations.

For to speak strictly, there is no East and West in nature, nor are those absolute and invariable, but respective and mutable points, according unto different longitudes, or distant parts of habitation, whereby

they suffer many and considerable variations. For first, unto some the same part will be East or West in respect of one another, that is, unto such as inhabit the same parallel, or differently dwell from East to West. Thus as unto *Spain*, *Italy* lyeth East, unto *Italy Greece*, unto *Greece Persia*, and unto *Persia China*; so again unto the Country of *China*, *Persia* lyeth West, unto *Persia Greece*, unto *Greece Italy*, and unto *Italy Spain*. So that the same Countrey is sometimes East and sometimes West; and *Persia* though East unto *Greece*, yet is it West unto *China*. CHAP. VII

Unto other habitations the same point will be both East and West; as unto those that are *Antipodes* or seated in points of the Globe diametrically opposed. So the *Americans* are Antipodal unto the *Indians*, and some part of *India* is both East and West unto *America*, according as it shall be regarded from one side or the other, to the right or to the left; and setting out from any middle point, either by East or West, the distance unto the place intended is equal, and in the same space of time in nature also performable.

To a third that have the Poles for their vertex, or dwell in the position of a parallel sphere, there will be neither East nor West, at least the greatest part of the year. For if (as the name *Oriental* implyeth) they shall account that part to be East where ever the Sun ariseth, or that West where the Sun is occidental or setteth: almost half the year they have neither the one nor the other. For half the year it is below their Horizon, and the other half it is continually above it, and circling round about them intersecting not the Horizon, nor leaveth any part for this compute. And if (which will seem very reasonable) that part should be

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termed the Eastern point, where the Sun at Æquinox, and but once in the year ariseth, yet will this also disturb the cardinal accounts, nor will it with propriety admit that appellation. For that surely cannot be accounted East which hath the South on both sides; which notwithstanding this position must have. For if unto such as live under the Pole, that be only North which is above them, that must be Southerly which is below them, which is all the other portion of the by Globe, beside that part possessed them. And thus these points of East and West being not absolute in any, respective in some, and not at all relating unto others; we cannot hereon establish so general considerations, nor reasonably erect such immutable assertions, upon so unstable foundations.

What the Northern and Southern Poles be.

Now the ground that begat or promoted this conceit, was first a mistake in the apprehension of East and West, considering thereof as of the North and South, and computing by these as invariably as by the other; but herein, upon second thoughts there is a great disparity. For the North and Southern Pole, are the invariable terms of that Axis whereon the heavens do move; and are therefore incommunicable and fixed points; wherof the one is not apprehensible in the other. But with East and West it is quite otherwise: for the revolution of the Orbs being made upon the Poles of North and South, all other points about the Axis are mutable; and wheresoever therein the East point be determined, by succession of parts in one revolution every point becometh East. And so if where the Sun ariseth, that part be termed East, every habitation differing in longitude, will have this point also different; in as much as the Sun successively ariseth unto every one.

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The second ground, although it depend upon the former, approacheth nearer the effect; and that is the efficacy of the Sun, set out and divided according to priority of ascent; whereby his influence is conceived more favourable unto one Countrey than another, and to felicitate *India* more than any after. But hereby we cannot avoid absurdities, and such as infer effects controulable by our senses. For first, by the same reason that we affirm the *Indian* richer than the *American*, the *American* will also be more plentiful than the *Indian*, and *England* or *Spain* more fruitful than *Hispaniola* or golden Castle: in as much as the Sun ariseth unto the one sooner than the other: and so accountably unto any Nation subjected unto the same parallel, or with a considerable diversity of longitude from each other.

Secondly, An unsufferable absurdity will ensue: for thereby a Country may be more fruitful than it self: For *India* is more fertile than *Spain*, because more East, and that the Sun ariseth first unto it: *Spain*, likewise by the same reason more fruitful than *America*, and *America* than *India*: so that *Spain* is less fruitful than that Countrey, which a less fertile Country than it self excelleth.

Lastly, If we conceive the Sun hath any advantage by priority of ascent, or makes thereby one Country more happy than another, we introduce injustifiable determinations, and impose a natural partiality on that Luminary, which being equidistant from the earth, and equally removed in the East as in the West, his Power and Efficacy in both places must be equal, as *Boetius* hath taken notice, and *Scaliger* hath graphically declared. Some have therefore forsaken this refuge of the Sun, and to salve the effect have recurred

De gemmis exercitat.

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unto the influence of the Stars, making their activities National, and appropriating their Powers unto particular regions. So *Cardan* conceiveth the tail of *Ursa Major* peculiarly respecteth *Europe*: whereas indeed once in 24 hours it also absolveth its course over *Asia* and *America*. And therefore it will not be easie to apprehend those stars peculiarly glance on us, who must of necessity carry a common eye and regard unto all Countries, unto whom their revolution and verticity is also common.

The effects therefore or different productions in several Countries, which we impute unto the action of the Sun, must surely have nearer and more immediate causes than that Luminary. And these if we place in the propriety of clime, or condition of soil wherein they are produced, we shall more reasonably proceed, than they who ascribe them unto the activity of the Sun. Whose revolution being regular, it hath no power nor efficacy peculiar from its orientality, but equally disperseth his beams unto all, which equally, and in the same restriction, receive his lustre. And being an universal and indefinite agent, the effects or productions we behold, receive not their circle from his causality, but are determined by the principles of the place, or qualities of that region which admits them. And this is evident not only in gemms, minerals, and mettals, but observable in plants and animals; whereof some are common unto many Countries, some peculiar unto one, some not communicable unto another. For the hand of God that first created the earth, hath with variety disposed the principles of all things; wisely contriving them in their proper seminaries, and where they best maintain the intention of their species; whereof if they have not a concurrence,

Whence proceed the different commodities of several Countries.

and be not lodged in a convenient matrix, they are not excited by the efficacy of the Sun; or failing in particular causes, receive a relief or sufficient promotion from the universal. For although superiour powers co-operate with inferiour activities, and may (as some conceive) carry a stroke in the plastick and formative draught of all things, yet do their determinations belong unto particular agents, and are defined from their proper principles. Thus the Sun which with us is fruitful in the generation of Frogs, Toads and Serpents, to this effect proves impotent in our neighbour Island; wherein as in all other carrying a common aspect, it concurreth but unto predisposed effects; and only suscitates those forms, whose determinations are seminal, and proceed from the *Idea* of themselves. CHAP. VII

Now whereas there be many observations concerning East, and divers considerations of Art which seem to extol the quality of that point, if rightly understood they do not really promote it. That the Astrologer takes account of nativities from the Ascendent, that is, the first house of the heavens, whose beginning is toward the East, it doth not advantage the conceit. For, he establisheth not his Judgment upon the orientality thereof, but considereth therein his first ascent above the Horizon; at which time its efficacy becomes observable, and is conceived to have the signification of life, and to respect the condition of all things, which at the same time arise from their causes, and ascend to their Horizon with it. Now this ascension indeed falls out respectively in the East: but as we have delivered before, in some positions there is no Eastern point from whence to compute these ascentions. So is it in a parallel sphere: for unto them six houses are continually depressed, and six never

Why Astrological judgments upon Nativities be taken from the Ascendent.

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elevated: and the planets themselves, whose revolutions are of more speed, and influences of higher consideration, must find in that place a very imperfect regard; for half their period they absolve above, and half beneath the Horizon. And so for six years, no man can have the happiness to be born under *Jupiter*: and for fifteen together all must escape the ascendent dominion of *Saturn*.

That *Aristotle* in his Politicks, commends the situation of a City which is open towards the East, and admitteth the raies of the rising Sun, thereby is implied no more particular efficacy than in the West: But that position is commended, in regard the damps and vaporous exhalations ingendered in the absence of the Sun, are by his returning raies the sooner dispelled; and men thereby more early enjoy a clear and healthy habitation. Upon the like considerations it is, that *Marcus Varro* commendeth the same situation, and exposeth his farm unto the equinoxial ascent of the Sun, and that *Palladius* adviseth the front of his edifice should so respect the South, that in the first angle it receive the rising raies of the Winter Sun, and decline a little from the Winter setting thereof. And concordant hereunto is the instruction of *Columella De positione villæ*: which he contriveth into Summer and Winter habitations, ordering that the Winter lodgings regard the Winter ascent of the Sun, that is South-East; and the rooms of repast at supper, the Æquinoxial setting thereof, that is the West: that the Summer lodgings regard the Æquinoxial Meridian: but the rooms of cænation in the Summer, he obverts unto the Winter ascent, that is, South-East; and the Balnearies or bathing places, that they may remain under the Sun until evening, he exposeth unto the

De re Rustica.

Summer setting, that is, North-West, in all which although the Cardinal points be introduced, yet is the consideration Solary, and only determined unto the aspect or visible reception of the Sun. CHAP. VII

Jews and *Mahometans* in these and our neighbour parts are observed to use some gestures towards the East, as at their benediction, and the killing of their meat. And though many ignorant spectators, and not a few of the Actors conceive some Magick or Mysterie therein, yet is the Ceremony only Topical, and in a memorial relation unto a place they honour. So the *Jews* do carry a respect and cast an eye upon *Jerusalem*: for which practice they are not without the example of their fore-fathers, and the encouragement of their wise King; For so it is said that *Daniel* went into his house, and his windows being opened towards *Jerusalem*, he kneeled upon his knees three times a day, and prayed. So is it expressed in the prayer of *Solomon*, what prayer or supplication soever be made by any man, which shall spread forth his hands towards this house: if thy people go out to battle, and shall pray unto the Lord towards the City which thou hast chosen, and towards the house which I have chosen to build for thy Name, then hear thou in heaven their prayer and their supplication, and maintain their cause. Now the observation hereof, unto the Jews that are dispersed Westward, and such as most converse with us, directeth their regard unto the East: But the words of *Solomon* are appliable unto all quarters of Heaven: and by the Jews of the East and South must be regarded in a contrary position. So *Daniel* in *Babylon* looking toward *Jerusalem* had his face toward the West. So the Jews in their own land looked upon it from all quarters. For the

Dan. 6.

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Tribe of *Judah* beheld it to the North: *Manasses*, *Zabulon*, and *Napthali* unto the South: *Reuben* and *Gad* unto the West; only the Tribe of *Dan* regarded it directly or to the due East. So when it is said, when you see a cloud rise out of the West, you say there cometh a shower, and so it is: the observation was respective unto *Judea*: nor is this a reasonable illation in all other Nations whatsoever: For the Sea lay West unto that Country, and the winds brought rain from that quarter; But this consideration cannot be transferred unto *India* or *China*, which have a vast Sea Eastward, and a vaster Continent toward the West. So likewise when it is said in the vulgar Translation, Gold cometh out of the North, it is no reasonable inducement unto us and many other Countries, from some particular mines septentrional unto his situation, to search after that mettal in cold and Northern regions, which we most plentifully discover in hot and Southern habitations.

Luke 12.

Job.

For the *Mahometans*, as they partake with all Religions in something, so they imitate the *Jew* in this. For in their observed gestures, they hold a regard unto *Mecha* and *Medina Talnabi*, two Cities in *Arabia fœlix*, where their Prophet was born and buried; whither they perform their pilgrimages: and from whence they expect he should return again. And therefore they direct their faces unto these parts, which unto the *Mahometans* of *Barbary* and *Egypt* lie East, and are in some point thereof unto many other parts of *Turkie*. Wherein notwithstanding there is no Oriental respect; for with the same devotion on the other side they regard these parts toward the West, and so with variety wheresover they are seated, conforming unto the ground of their conception.

Fourthly, Whereas in the ordering of the Camp of CHAP.
rael, the East quarter is appointed unto the noblest VII
ribe, that is the Tribe of *Judah*, according to the
mmand of God, in the East-side toward the rising
the Sun shall the Standard of the Tribe of *Judah* *Num.* 3.
tch: it doth not peculiarly extol that point. For
rein the East is not to be taken strictly, but as it
gnifieth or implieth the foremost place; for *Judah*
d the Van, and many Countries through which they
ssed were seated Easterly unto them. Thus much
implied by the Original, and expressed by Transla-
ons which strictly conform thereto: So *Tremelius*,
ustra habentium ab anteriore parte Orientem versus,
xillum esto castrorum Judæ; so hath *R. Solomon*
rchi expounded it, the foremost or before, is the
ast quarter, and the West is called behind. And
on this interpretation may all be salved that is
leageable against it. For if the Tribe of *Judah* were
pitch before the Tabernacle at the East, and yet to
arch first, as is commanded, *Numb.* 10. there must
sue a disorder in the Camp, nor could they con-
niently observe the execution thereof: For when they
t out from *Mount Sinah* where the Command was
livered, they made Northward unto *Rithmah*; from
ssah unto *Eziongaber* about fourteen stations they
arched South: From *Almon Diblathaim* through the
ountains of *Yabarim* and plains of *Moab* towards
rdan the face of their march was West: So that if
dah were strictly to pitch in the East of the Taber-
cle, every night he encamped in the Rear: and if (as
me conceive) the whole Camp could not be less than
elve miles long, it had been preposterous for him to
ve marched foremost; or set out first who was most
mote from the place to be approached.

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Fiftly, That Learning, Civility and Arts had their beginning in the East, it is not imputable either to the action of the Sun, or its Orientality, but the first plantation of Man in those parts, which unto *Europe* do carry the respect of East. For on the mountains of *Ararat*, that is part of the hill *Taurus*, between the *East Indies* and *Scythia*, as Sir *W. Raleigh* accounts it, the Ark of *Noah* rested; from the East they travelled that built the Tower of *Babel*: from thence they were dispersed and successively enlarged, and Learning, good Arts, and all Civility communicated. The progression whereof was very sensible; and if we consider the distance of time between the confusion of *Babel*, and the Civility of many parts now eminent therein, it travelled late and slowly into our quarters. For notwithstanding the learning of *Bardes* and *Druides* of elder times, he that shall peruse that work of *Tacitus de moribus Germanorum*, may easily discern how little Civility two thousand years had wrought upon that Nation: the like he may observe concerning our selves, from the same Author in the life of *Agricola*, and more directly from *Strabo*; who to the dishonour of our Predecessors, and the disparagement of those that glory in the Antiquity of their Ancestors, affirmeth the *Britains* were so simple, that though they abounded in Milk, they had not the Artifice of Cheese.

Where the Ark rested as some think.

Lastly, That the Globe it self is by Cosmographers divided into East and West, accounting from the first Meridian, it doth not establish this conceit. For that division is not naturally founded, but artificially set down, and by agreement; as the aptest terms to define or commensurate the longitude of places. Thus the ancient Cosmographers do place the division of the East and Western Hemisphere, that is the first term

of longitude in the Canary or fortunate Islands; conceiving these parts the extreamest habitations Westward: But the Moderns have altered that term, and translated it unto the Azores or Islands of St. *Michael*; and that upon a plausible conceit of the small or insensible variation of the Compass in those parts, wherein nevertheless, and though upon second invention, they proceed upon a common and no appropriate foundation; for even in that Meridian farther North or South the Compass observably varieth; and there are also other places wherein it varieth not, as *Alphonso* and *Rodoriges de Lago* will have it about *Capo de las Agullas* in *Africa*; as *Maurolycus* affirmeth in the shore of *Peleponesus* in *Europe*: and as *Gilbertus* averreth, in the midst of great regions, in most parts of the earth. CHAP. VII

CHAPTER VIII

Of the River *Nilus.*

HEREOF uncontroulably and under general consent many opinions are passant, which notwithstanding upon due examination, do admit of doubt or restriction. It is generally esteemed, and by most unto our days received, that the River of *Nilus* hath seven ostiaries; that is, by seven Channels disburdeneth it self into the Sea. Wherein notwithstanding, beside that we find no concurrent determination of ages past, and a positive and undeniable refute of these present, the affirmative is mutable, and must not be received without all limitation.

For some, from whom we receive the greatest illustrations of Antiquity, have made no mention hereof: So

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Homer hath given no number of its Channels, nor so much as the name thereof in use with all Historians. *Eratosthenes* in his description of *Egypt* hath likewise passed them over. *Aristotle* is so indistinct in their names and numbers, that in the first of *Meteors* he plainly affirmeth the Region of *Egypt* (which we esteem the ancientest Nation in the world) was a meer gained ground, and that by the setling of mud and limous matter brought down by the River *Nilus*, that which was at first a continued Sea, was raised at last into a firm and habitable Country. The like opinion he held of *Mœotis Palus*, that by the floods of *Tanais* and earth brought down thereby, it grew observably shallower in his days, and would in process of time become a firm land. And though his conjecture be not as yet fulfilled, yet is the like observable in the River *Gihon*, a branch of *Euphrates* and River of Paradise; which having in former Ages discharged it self into the *Persian* Sea, doth at present fall short; being lost in the lakes of *Chaldea*, and hath left between the Sea, a large and considerable part of dry land.

How Egypt first became firm land.

Others expresly treating hereof, have diversly delivered themselves; *Herodotus* in his Euterpe makes mention of seven; but carelesly of two thereof; that is *Bolbitinum*, and *Bucolicum*; for these, saith he, were not the natural currents, but made by Art for some occasional convenience. *Strabo* in his Geography naming but two, *Peleusiacum* and *Canopicum*, plainly affirmeth there were many more than seven; *Inter hæc alia quinque*, etc. There are (saith he) many remarkable towns within the currents of Nile, especially such which have given the names unto the ostiaries thereof, not unto all, for they are eleven, and four besides, but unto seven and most considerable; that is *Canopicum*,

Bolbitinum, *Selenneticum*, *Sebenneticum*, *Pharniticum*, *Mendesium*, *Taniticum* and *Pelusium*: wherein to make up the number, one of the artificial chanels of *Herodotus* is accounted. *Ptolomy* an *Egyptian*, and born at the *Pelusian* mouth of *Nile*, in his Geography maketh nine: and in the third Map of *Africa*, hath unto their mouths prefixed their several names; *Heracleoticum*, *Bolbitinum*, *Sebenneticum*, *Pineptum*, *Diolcos*, *Pathmeticum*, *Mendesium*, *Taniticum*, *Peleusiacum*: wherein notwithstanding there are no less then three different names from those delivered by *Pliny*. All which considered, we may easily discern that Authors accord not either in name or number; and must needs confirm the Judgement of *Maginus*, *de Ostiorum Nili numero et nominibus, valde antiqui scriptores discordant.* CHAP. VIII

Modern Geographers and travellers do much abate of this number, for as *Maginus* and others observe, there are now but three or four mouths thereof; as *Gulielmus Tyrius* long ago, and *Bellonius* since, both ocular enquirers, with others have attested. For below *Cairo*, the River divides it self into four branches, whereof two make the chief and navigable streams, the one running to *Pelusium* of the Ancients, and now *Damiata*; the other unto *Canopium*, and now *Roscetta*; the other two, saith Mr. *Sandys*, do run between these; but poor in water. Of those seven mentioned by *Herodotus*, and those nine by *Ptolomy*, these are all I could either see or hear of. Which much confirmeth the testimony of the Bishop of *Tyre* a diligent and ocular Enquirer; who in his holy war doth thus deliver himself. We wonder much at the Ancients, who assigned seven mouths unto *Nilus*; which we can no otherwise salve, then that by process of time, the face

Sand. *Relation.*

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of places is altered, and the river hath lost his chanels; or that our fore-fathers did never obtain a true account thereof.

Isa. 11. 15, 16. And therefore when it is said in holy Scripture, The Lord shall utterly destroy the tongue of the *Egyptian* sea, and with his mighty wind he shall shake his hand over the river, and shall smite it in the seven streams, and make men go over dry-shod. If this expression concerneth the river *Nilus*, it must only respect the seven principal streams. But the place is very obscure, and whether thereby be not meant the river *Euphrates*, is not without some controversie; as is collectible from the subsequent words; And there shall be an high way for the remnant of his people, that shall be left from *Assyria*; and also from the bare name *River*, emphatically signifying *Euphrates*, and thereby the division of the *Assyrian* Empire into many fractions, which might facilitate their return: as *Grotius* hath observed; and is more plainly made out, if the *Apocrypha* of *Esdras*, and that of the *Apocalyps* have any relation hereto.

Gr. Not in Isaiam. *Esdr.* 2. 13, 43, 47. *Apoc.* 16. 12.

Lastly, Whatever was or is their number, the contrivers of Cards and Maps afford us no assurance or constant description therein. For whereas *Ptolomy* hath set forth nine, *Hondius* in his Map of *Africa* makes but eight, and in that of *Europe* ten. *Ortelius* in the Map of the *Turkish* Empire, setteth down eight, in that of *Egypt* eleven; and *Maginus* in his Map of that Country hath observed the same number. And if we enquire farther, we shall find the same diversity and discord in divers others.

Thus may we perceive that this account was differently related by the Ancients, that it is undeniably rejected by the Moderns, and must be warily received

by any. For if we receive them all into account, they were more then seven, if only the natural sluces, they were fewer; and however we receive them, there is no agreeable and constant description thereof. And therefore how reasonable it is to draw continual and durable deductions from alterable and uncertain foundations; let them consider who make the gates of *Thebes*, and the mouths of this River a constant and continued periphrasis for this number, and in their Poetical expressions do give the River that Epithite unto this day. CHAP. VIII

The same River is also accounted the greatest of the earth, called therefore *Fluviorum pater*, and *totius Orbis maximus*, by *Ortelius*: If this be true, many Maps must be corrected, or the relations of divers good Authors renounced.

For first, In the deliniations of many Maps of *Africa*, the River *Niger* exceedeth it about ten degrees in length, that is, no less then six hundred miles. For arising beyond the Æquator it maketh Northward almost 15 degrees, and deflecting after Westward, without Meanders, continueth a strait course about 40 degrees; and at length with many great currents disburdeneth it self into the Occidental Ocean. Again, if we credit the descriptions of good Authors, other Rivers excell it in length, or breadth, or both. *Arrianus* in his history of *Alexander*, assigneth the first place unto the River *Ganges*; which truly according unto latter relations, if not in length, yet in breadth and depth may be granted to excell it. For the magnitude of *Nilus* consisteth in the dimension of longitude, and is inconsiderable in the other; what stream it maintaineth beyond *Syene* or *Asna*, and so forward unto its original, relations are very imperfect;

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but below these places, and farther removed from the head, the current is but narrow, and we read in the History of the *Turks*, the *Tartar* horsemen of *Selimus* swam over the *Nile* from *Cairo*, to meet the forces of *Tonumbeus*. *Baptista Scortia* expresly treating hereof, preferreth the River of *Plate* in *America*; for that as *Maffeus* hath delivered, falleth into the Ocean in the latitude of forty leagues; and with that source and plenty that men at Sea do tast fresh water, before they approach so near as to discover the land. So is it exceeded by that which by *Cardan* is termed the greatest in the world, that is the River *Oregliana* in the same continent; which as *Maginus* delivereth, hath been navigated 6000 miles; and opens in a chanel of ninety leagues broad; so that, as *Acosta*, an ocular witness recordeth, they that sail in the middle, can make no land of either side.

De natura et incremento Nili.

Now the ground of this assertion was surely the magnifying esteem of the Ancients, arising from the indiscovery of its head. For as things unknown seem greater then they are, and are usually received with amplifications above their nature; so might it also be with this River, whose head being unknown and drawn to a proverbial obscurity, the opinion thereof became without bounds; and men must needs conceit a large extent of that to which the discovery of no man had set a period. And this an usual way to give the superlative unto things of eminency in any kind; and when a thing is very great, presently to define it to be the greatest of all. Whereas indeed Superlatives are difficult; whereof there being but one in every kind, their determinations are dangerous, and must not be made without great circumspection. So the City of *Rome* is magnified by the *Latines* to be the greatest of

The greatest Cities of the World.

the earth; but time and Geography informs us, that *Cairo* is bigger, and *Quinsay* in *China* far exceedeth both. So is *Olympus* extolled by the *Greeks*, as an hill attaining unto heaven; but the enlarged Geography of aftertimes makes slight account hereof, when they discourse of *Andes* in *Peru*, or *Teneriffa* in the *Canaries*. And we understand by a person who hath lately had a fair opportunity to behold the magnified mount *Olympus*, that it is exceeded by some peakes of the *Alpes*. So have all Ages conceived, and most are still ready to swear, the Wren is the least of Birds; yet the discoveries of *America*, and even of our own Plantations have shewed us one far less; that is, the Humbird, not much exceeding a Beetle. And truly, for the least and greatest, the highest and the lowest of every kind, as it is very difficult to define them in visible things, so is it to understand in things invisible. Thus is it no easie lesson to comprehend the first matter, and the affections of that which is next neighbour unto nothing, but impossible truly to comprehend God, who indeed is all in all. For things as they arise unto perfection, and approach unto God, or descend to imperfection, and draw nearer unto nothing, fall both imperfectly into our apprehensions; the one being too weak for our conceptions, our conceptions too weak for the other.

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The highest Hills.

Tomineio.

Thirdly, Divers conceptions there are concerning its increment or inundation. The first unwarily opinions, that this encrease or annual overflowing is proper unto *Nile*, and not agreeable unto any other River; which notwithstanding is common unto many Currents of *Africa*. For about the same time the River *Niger* and *Zaire* do overflow; and so do the Rivers beyond the mountains of the Moon, as *Suama*, and *Spirito*

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Santo. And not only these in *Africa*, but some also in *Europe* and *Asia*; for so it is reported of *Menan* in *India*, and so doth *Botero* report of *Duina* in *Livonia*; and the same is also observable in the River *Jordan* in *Judea*; for so is it delivered, that *Jordan* overfloweth all his banks in the time of harvest.

The effect indeed is wonderful in all, and the causes surely best resolvable from observations made in the Countries themselves, the parts through which they pass, or whence they take their Original. That of *Nilus* hath been attempted by Many, and by some to that despair of resolution, that they have only referred it unto the Providence of God, and his secret manu-

The cause of the overflowing of Nilus.

duction of all things unto their ends. But divers have attained the truth, and the cause alledged by *Diodorus*, *Seneca*, *Strabo*, and others, is allowable; that the inundation of *Nilus* in *Egypt* proceeded from the rains in *Æthiopia*, and the mighty source of waters falling towards the fountains thereof. For this inundation unto the *Egyptians* happeneth when it is winter unto the *Æthiopians*; which habitations, although they have no cold Winter (the Sun being no farther removed from them in Cancer, then unto us in Taurus) yet is the fervour of the air so well remitted, as it admits a sufficient generation of vapors, and plenty of showers ensuing thereupon. This Theory of the Ancients is since confirmed by experience of the Moderns; by *Franciscus Alvarez*, who lived long in those parts, and left a description of *Æthiopia*; affirming that from the middle of June unto September, there fell in his time continual rains. As also *Antonius Ferdinandus*, who in an Epistle written from thence, and noted by *Codignus*, affirmeth, that during the winter, in those Countries there passed no day without rain.

Now this is also usual, to translate a remarkable quality into a propriety, and where we admire an effect in one, to opinion there is not the like in any other. With these conceits do common apprehensions entertain the antidotal and wondrous condition of *Ireland*; conceiving only in that land an immunity from venemous creatures: but unto him that shall further enquire, the same will be affirmed of *Creta*, memorable in ancient stories, even unto fabulous causes, and benediction from the birth of *Jupiter*. The same is also found in *Ebusus* or *Evisa*, an Island near *Majorca* upon the coast of *Spain*. With these apprehensions do the eyes of neighbour Spectators behold *Ætna*, the flaming mountain in *Sicilia*; but Navigators tell us there is a burning mountain in Island, a more remarkable one in *Teneriffa* of the *Canaries*, and many Vulcano's or fiery Hils elsewhere. Thus Crocodiles were thought to be peculiar unto *Nile*, and the opinion so possessed *Alexander*, that when he had discovered some in *Ganges*, he fell upon a conceit he had found the head of *Nilus*; but later discoveries affirm they are not only in *Asia* and *Africa*, but very frequent in some rivers of *America*. CHAP. VIII

Another opinion confineth its Inundation, and positively affirmeth, it constantly encreaseth the seventeenth day of June; wherein perhaps a larger form of speech were safer, then that which punctually prefixeth a constant day thereto. For this expression is different from that of the Ancients, as *Herodotus*, *Diodorus*, *Seneca*, etc. delivering only that it happeneth about the entrance of the Sun into Cancer; wherein they warily deliver themselves, and reserve a reasonable latitude. So when *Hippocrates* saith, *Sub Cane et ante Canem difficiles sunt purgationes*: There is a latitude of

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days comprised therein; for under the Dog-star he containeth not only the day of its ascent, but many following, and some ten days preceeding. So *Aristotle* delivers the affections of animals: with the wary terms of *Circa, et magna ex parte*: and when *Theodorus* translateth that part of his, *Coeunt Thunni et Scombri mense Februario post Idus, pariunt Junio ante Nonas*: *Scaliger* for *ante Nonas*, renders it *Junii initio*; because that exposition affordeth the latitude of divers days: For affirming it happeneth before the Nones, he alloweth but one day; that is the Calends; for in the *Roman* account, the second day is the fourth of the Nones of June.

Again, Were the day definitive, it had prevented the delusion of the devil, nor could he have gained applause by its prediction; who notwithstanding (as *Athanasius* in the life of *Anthony* relateth) to magnifie his knowledge in things to come, when he perceived the rains to fall in *Æthiopia*, would presage unto the *Egyptians* the day of its inundation. And this would also make useless that natural experiment observed in earth or sand about the River; by the weight whereof (as good Authors report) they have unto this day a knowledge of its encrease.

Lastly, It is not reasonable from variable and unstable causes, to derive a fixed and constant effect, and such are the causes of this inundation, which cannot indeed be regular, and therefore their effects not prognosticable like Eclipses. For depending upon the clouds and descent of showers in *Æthiopia*, which have their generation from vaporous exhalations, they must submit their existence unto contingencies, and endure anticipation and recession from the movable condition of their causes. And therefore some years there hath been no

encrease at all, as some conceive in the years of Famin under *Pharaoh*, as *Seneca*, and divers relate of the eleventh year of *Cleopatra*; nor nine years together, as is testified by *Calisthenes*. Some years it hath also retarded, and came far later then usually it was expected, as according to *Sozomen* and *Nicephorus* it happened in the days of *Theodosius*; whereat the people were ready to mutiny, because they might not sacrifice unto the River, according to the custom of their Predecessors. CHAP. VIII

Now this is also an usual way of mistake, and many are deceived who too strictly construe the temporal considerations of things. Thus books will tell us, and we are made to believe that the fourteenth year males are seminifical and pubescent; but he that shall enquire into the generality, will rather adhere unto the cautelous assertion of *Aristotle*, that is, *bis septem annis exactis*, and then but *magna ex parte*. That Whelps are blind nine days, and then begin to see, is generally believed, but as we have elsewhere declared, it is exceeding rare, nor do their eye-lids usually open until the twelfth, and sometimes not before the fourteenth day. And to speak strictly, an hazardable determination it is unto fluctuating and indifferent effects, to affix a positive Type or Period. For in effects of far more regular causalities, difficulties do often arise, and even in time it self, which measureth all things, we use allowance in its commensuration. Thus while we conceive we have the account of a year in 365 days, exact enquirers and Computists will tell us, that we escape 6 hours, that is a quarter of a day. And so in a day which every one accounts 24 hours, or one revolution of the Sun, in strict account we must allow the addition of such a part as the Sun doth make in his

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proper motion, from West to East, whereby in one day he describeth not a perfect Circle.

Fourthly, It is affirmed by many, and received by most, that it never raineth in *Egypt*, the river supplying that defect, and bountifully requiting it in its inundation: but this must also be received in a qualified sense, that is, that it rains but seldom at any time in the Summer, and very rarely in the Winter. But that great showers do sometimes fall upon that Region, beside the Assertion of many Writers, we can confirm from honourable and ocular testimony, and that not many years past, it rained in Grand *Cairo* divers days together.

That Egypt *hath rain. Sir* William Paston *Baronet.*

The same is also attested concerning other parts of *Egypt*, by *Prosper Alpinus*, who lived long in that Country, and hath left an accurate Treaty of the medical practise thereof. *Cayri raro decidunt pluviæ, Alexandriæ, Pelusiiq; et in omnibus locis mari adjacentibus, pluit largissime et sæpe*; that is, it raineth seldom at *Cairo*, but at *Alexandria*, *Damiata*, and places near the Sea, it raineth plentifully and often. Whereto we might add the latter testimony of Learned Mr. *Greaves*, in his accurate description of the *Pyramids*.

Exod. 9.

Beside, Men hereby forget the relation of holy Scripture. *Behold I will cause it to rain a very great hail, such as hath not been in* Egypt *since the foundation thereof, even untill now.* Wherein God threatning such a rain as had not happened, it must be presumed they had been acquainted with some before, and were not ignorant of the substance, the menace being made in the circumstance. The same concerning hail is inferrible from *Prosper Alpinus*. *Rarissime nix, grando*, it seldom snoweth or haileth. Where by we must concede that snow and hail do sometimes fall, because they happen seldom.

Now this mistake ariseth from a misapplication of the bounds or limits of time, and an undue transition from one unto another; which to avoid, we must observe the punctual differences of time, and so distinguish thereof, as not to confound or lose the one in the other. For things may come to pass, *Semper*, *Plerumq*; *Sæpe*, *aut Nunquam*, *Aliquando*, *Raro*; that is, Always, or Never, For the most part, or Sometimes, Ofttimes, or Seldom. Now the deception is usual which is made by the mis-application of these; men presently concluding that to happen often, which happeneth but sometimes: that never, which happeneth but seldom; and that alway, which happeneth for the most part. So is it said, the Sun shines every day in Rhodes, because for the most part it faileth not. So we say and believe that a Camelion never eateth, but liveth only upon air, whereas indeed it is seen to eat very seldom, but many there are who have beheld it to feed on Flyes. And so it is said, that children born in the eighth moneth live not, that is, for the most part, but not to be concluded alwaies: nor it seems in former ages in all places: for it is otherwise recorded by *Aristotle* concerning the births of *Egypt*. CHAP. VIII

Lastly, It is commonly conceived that divers Princes hath attempted to cut the Isthmus or tract of land which parteth the *Arabian* and *Mediterranean* Sea: but upon enquiry I find some difficulty concerning the place attempted; many with good authority affirming, that the intent was not immediately to unite these Seas, but to make a navigable chanel between the Red Sea and the Nile, the marks whereof are extant to this day; it was first attempted by *Sesostris*, after by *Darius*, and in a fear to drown the Country, deserted Lingua maris Ægyptii. *Isa.* 11. 15.

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by them both; but was long after re-attempted and in some manner effected by *Philadelphus*. And so the grand Signior who is Lord of the Country, conveyeth his Gallies into the Red Sea by the Nile; for he bringeth them down to Grand *Cairo* where they are taken in pieces, carried upon Camels backs, and rejoyned together at Sues, his port and Naval station for that Sea; whereby in effect he acts the design of *Cleopatra*, who after the battle of *Actium* in a different way would have conveyed her Gallies into the Red Sea.

Isthmum perfodere.

And therefore that proverb to cut an Isthmus, that is, to take great pains, and effect nothing, alludeth not unto this attempt; but is by *Erasmus* applyed unto several other, as that undertaking of the Cnidians to cut their Isthmus, but especially that of *Corinth* so unsuccessfully attempted by many Emperours. The Cnidians were deterred by the peremptory disswasion of *Apollo*, plainly commanding them to desist; for if God had thought it fit, he would have made that Country an Island at first. But this perhaps will not be thought a reasonable discouragement unto the activity of those spirits which endeavour to advantage nature by Art, and upon good grounds to promote any part of the universe; nor will the ill success of some be made a sufficient determent unto others; who know that many learned men affirm, that Islands were not from the beginning, that many have been made since by Art, that some Isthmus have been eat through by the Sea, and others cut by the spade: And if policy would permit, that of *Panama* in *America* were most worthy the attempt: it being but few miles over, and would open a shorter cut unto the East Indies and China.

CHAPTER IX

Of the Red Sea.

CONTRARY apprehensions are made of the Erythræan or Red Sea; most apprehending a material redness therein, from whence they derive its common denomination; and some so lightly conceiving hereof, as if it had no redness at all, are fain to recur unto other originals of its appellation. Wherein to deliver a distinct account, we first observe that without consideration of colour it is named the *Arabian Gulph*: The Hebrews who had best reason to remember it, do call it *Zuph*, or the weedy Sea; because it was full of sedge, or they found it so in their passage; the *Mahometans* who are now lords thereof do know it by no other name then the *Gulph* of *Mecha* a City of *Arabia*. *What the Red Sea is.*

The stream of Antiquity deriveth its name from King *Erythrus*; so sleightly conceiving of the nominal deduction from Redness, that they plainly deny there is any such accident in it. The words of *Curtius* are plain beyond Evasion, *Ab Erythro rege inditum est nomen, propter quod ignari rubere aquas credunt*: Of no more obscurity are the words of *Philostratus*, and of later times, *Sabellicus*; *Stulte persuasum est vulgo rubras alicubi esse maris aquas, quin ab Erythro rege nomen pelago inditum.* Of this opinion was *Andræas Corsalius*, *Pliny*, *Solinus*, *Dio Cassius*, who although they denied not all redness, yet did they rely upon the original from King *Erythrus*.

Others have fallen upon the like, or perhaps the

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same conceit under another appellation; deducing its name not from King *Erythrus*, but *Esau* or *Edom*, whose habitation was upon the coasts thereof. Now *Edom* is as much as *Erythrus*, and the red Sea no more then the *Idumean*; from whence the posterity of *Edom* removing towards the Mediterranean coast, according to their former nomination by the Greeks were called *Phœnicians* or red men: and from a plantation and colony of theirs, an Island near Spain was by the Greek describers termed *Erithra*, as is declared by *Strabo* and *Solinus*.

More exactly hereof Bochartus *and Mr.* Dickinson.

Very many omitting the nominal derivation, do rest in the gross and literal conception thereof, apprehending a real redness and constant colour of parts. Of which opinion are also they which hold the Sea receiveth a red and minious tincture from springs, wells, and currents that fall into it; and of the same belief are probably many Christians, who conceiving the passage of the *Israelites* through this Sea to have been the type of Baptism, according to that of the Apostle, All were baptized unto *Moses* in the cloud, and in the Sea: for the better resemblance of the blood of Christ, they willingly received it in the apprehension of redness, and a colour agreeable unto its mystery: according unto that of *Austin*, *Significat mare illud rubrum Baptismum Christi; unde nobis Baptismus Christi nisi sanguine Christi consecratus?*

1 *Cor.* 10. 2.

Aug. in Johannem.

But divers Moderns not considering these conceptions, and appealing unto the Testimony of sense, have at last determined the point: concluding a redness herein, but not in the sense received. Sir *Walter Raleigh* from his own and *Portugal* observations, doth place the redness of the Sea in the reflection from red Islands, and the redness of the earth at the bottom:

wherein Coral grows very plentifully, and from whence in great abundance it is transported into *Europe*. The observations of *Alberquerque* and *Stephanus de Gama* (as from *Johannes de Bairros*, *Fernandius de Cordova* relateth) derive this redness from the colour of the sand and argillous earth at the bottom; for being a shallow Sea, while it rowleth to and fro, there appeareth a redness upon the water, which is most discernable in sunny and windy weather. But that this is no more than a seeming redness, he confirmeth by an experiment; for in the reddest part taking up a vessel of water, it differed not from the complexion of other Seas. Nor is this colour discoverable in every place of that Sea, for as he also observeth, in some places it is very green, in others white and yellow, according to the colour of the earth or sand at the bottom. And so may *Philostratus* be made out, when he saith, this Sea is blew; or *Bellonius* denying this redness, because he beheld not that colour about Sues; or when *Corsalius* at the mouth thereof could not discover the same. CHAP. IX

Now although we have enquired the ground of redness in this Sea, yet are we not fully satisfied: for what is forgot by many, and known by few, there is another Red Sea whose name we pretend not to make out from these principles; that is, the *Persian* Gulph or Bay, which divideth the *Arabian* and *Persian* shore, as *Pliny* hath described it. *Mare rubrum in duos dividitur sinus, is qui ab Oriente est, Persicus appellatur*; or as *Solinus* expresseth it, *Qui ab Oriente est Persicus appellatur, ex adverso unde Arabia est, Arabicus*; whereto assenteth *Suidas*, *Ortelius*, and many more. And therefore there is no absurdity in *Strabo* when he delivereth that *Tigris* and *Euphrates* do fall into the

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Red Sea, and *Fernandius de Cordova* justly defendeth his Countryman *Seneca* in that expression;

Et qui renatum prorsus excipiens diem
Tepidum Rubenti Tigrin immiscet freto.

Nor hath only the *Persian* Sea received the same name with the *Arabian*, but what is strange, and much confounds the distinction, the name thereof is also derived from King *Erythrus*; who was conceived to be buried in an Island of this Sea, as *Dionysius Afer*, *Curtius* and *Suidas* do deliver. Which were of no less probability than the other, if (as with the same authors *Strabo* affirmeth) he was buried neer *Caramania* bordering upon the *Persian* Gulph. And if his Tomb was seen by *Nearchus*, it was not so likely to be in the *Arabian* Gulph; for we read that from the River *Indus* he came unto *Alexander* at *Babylon*, some few days before his death. Now *Babylon* was seated upon the River *Euphrates*, which runs into the *Persian* Gulph. And therefore however the Latin expresseth it in *Strabo*, that *Nearchus* suffered much in the *Arabian Sinus*, yet is the original κόλπος πέρσικος, that is, the Gulf of *Persia*.

That therefore the Red Sea or *Arabian* Gulph received its name from personal derivation, though probable, is but uncertain; that both the Seas of one name should have one common denominator, less probable; that there is a gross and material redness in either, not to be affirmed: that there is an emphatical or appearing redness in one, not well to be denied. And this is sufficient to make good the Allegory of the Christians: and in this distinction may we justifie the name of the Black Sea, given unto *Pontus Euxinus*: the name of *Xanthus*, or the yellow River of *Phrygia*:

and the name of *Mar Vermeio*, or the Red Sea in *America*. CHAP. IX

CHAPTER X

Of the Blackness of *Negroes*.

IT is evident not only in the general frame of Nature, that things most manifest unto sense, have proved obscure unto the understanding: But even in proper and appropriate Objects, wherein we affirm the sense cannot err, the faculties of reason most often fail us. Thus of colours in general, under whose gloss and vernish all things are seen, few or none have yet beheld the true nature; or positively set down their incontroulable causes. Which while some ascribe unto the mixture of the Elements, others to the graduality of Opacity and Light; they have left our endeavours to grope them out by twi-light, and by darkness almost to discover that whose existence is evidenced by Light. The *Chymists* have laudably reduced their causes unto Sal, Sulphur, and Mercury; and had they made it out so well in this, as in the objects of smell and taste, their endeavours had been more acceptable: For whereas they refer Sapor unto Salt, and Odor unto Sulphur, they vary much concerning colour; some reducing it unto Mercury, some to Sulphur; others unto Salt. Wherein indeed the last conceit doth not oppress the former; and though Sulphur seem to carry the master-stroak, yet Salt may have a strong co-operation. For beside the fixed and terrestrious Salt, there is in natural bodies a *Sal niter* referring unto Sulphur; there is also a volatile or Armoniack Salt, retaining unto Mercury; by which Salts the colours of bodies

The Principles of Colour according to the Chymists.

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are sensibly qualified, and receive degrees of lustre or obscurity, superficiality or profundity, fixation or volatility.

Their general or first Natures being thus obscure, there will be greater difficulties in their particular discoveries; for being farther removed from their simplicities, they fall into more complexed considerations; and so require a subtiler act of reason to distinguish and call forth their natures. Thus although a man understood the general nature of colours, yet were it no easie Problem to resolve, Why Grass is green? Why Garlick, Molyes, and Porrets have white roots, deep green leaves, and black seeds? Why several docks and sorts of Rhubarb with yellow roots, send forth purple flowers? Why also from Lactary or milky plants which have a white and lacteous juyce dispersed through every part, there arise flowers blew and yellow? Moreover, beside the specifical and first digressions ordained from the Creation, which might be urged to salve the variety in every species; Why shall the marvail of *Peru* produce its flowers of different colours, and that not once, or constantly, but every day, and variously? Why Tulips of one colour produce some of another, and running through almost all, should still escape a blew? And lastly, Why some men, yea and they a mighty and considerable part of mankind, should first acquire and still retain the gloss and tincture of blackness? Which whoever strictly enquires, shall find no less of darkness in the cause, than in the effect it self; there arising unto examination no such satisfactory and unquarrelable reasons, as may confirm the causes generally received; which are but two in number. The heat and scorch of the Sun; or the curse of God on *Cham* and his Posterity.

The first was generally received by the Ancients, who in obscurities had no higher recourse than unto Nature, as may appear by a Discourse concerning this point in *Strabo*. By *Aristotle* it seems to be implied in those Problems which enquire why the Sun makes men black, and not the fire? Why it whitens wax, yet blacks the skin? By the word *Æthiops* it self, applied to the memorablest Nations of *Negroes*, that is of a burnt and torrid countenance. The fancy of the Fable infers also the Antiquity of the opinion; which deriveth this complexion from the deviation of the Sun, and the conflagration of all things under *Phaeton*. But this opinion though generally embraced, was I perceive rejected by *Aristobulus* a very ancient Geographer; as is discovered by *Strabo*. It hath been doubted by several modern Writers, particularly by *Ortelius*; but amply and satisfactorily discussed as we know by no man. We shall therfore endeavour a full delivery hereof, declaring the grounds of doubt, and reasons of denial, which rightly understood, may, if not overthrow, yet shrewdly shake the security of this Assertion. CHAP. X

And first, Many which countenance the opinion in this reason, do tacitly and upon consequence overthrow it in another. For whilst they make the River *Senaga* to divide and bound the *Moors*, so that on the South side they are black, on the other only tawny; they imply a secret causality herein from the air, place or river; and seem not to derive it from the Sun. The effects of whose activity are not precipitously abrupted, but gradually proceed to their cessations.

Secondly, If we affirm that this effect proceeded, or as we will not be backward to concede, it may be advanced and fomented from the fervour of the Sun;

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yet do we not hereby discover a principle sufficient to decide the question concerning other animals; nor doth he that affirmeth the heat makes man black, afford a reason why other animals in the same habitations maintain a constant and agreeable hue unto those in other parts, as Lions, Elephants, Camels, Swans, Tigers, Estriges. Which though in *Æthiopia*, in the disadvantage of two Summers, and perpendicular Rayes of the Sun, do yet make good the complexion of their species, and hold a colourable correspondence unto those in milder regions. Now did this complexion proceed from heat in man, the same would be communicated unto other animals which equally participate the Influence of the common Agent. For thus it is in the effects of cold, in Regions far removed from the Sun; for therein men are not only of fair complexions, gray-eyed, and of light hair; but many creatures exposed to the air, deflect in extremity from their natural colours; from brown, russet and black, receiving the complexion of Winter, and turning perfect white. Thus *Olaus Magnus* relates, that after the Autumnal Æquinox, Foxes begin to grow white; thus *Michovius* reporteth, and we want not ocular confirmation, that Hares and Partridges turn white in the Winter; and thus a white Crow, a proverbial rarity with us, is none unto them; but that inseparable accident of *Porphyrie* is separated in many hundreds.

Thirdly, If the fervour of the Sun, or intemperate heat of clime did solely occasion this complexion, surely a migration or change thereof might cause a sensible, if not a total mutation; which notwithstanding experience will not admit. For *Negroes* transplanted, although into cold and phlegmatick habitations, continue their hue both in themselves, and also their

generations; except they mix with different complexions; whereby notwithstanding there only succeeds a remission of their tinctures; there remaining unto many descents a strong shadow of their Originals; and if they preserve their copulations entire, they still maintain their complexions. As is very remarkable in the dominions of the Grand Signior, and most observable in the *Moors* in *Brasilia*, which transplanted about an hundred years past, continue the tinctures of their fathers unto this day. And so likewise fair or white people translated in hotter Countries receive not impressions amounting to this complexion, as hath been observed in many *Europeans* who have lived in the land of *Negroes*: and as *Edvardus Lopes* testifieth of the *Spanish* plantations, that they retained their native complexions unto his days. CHAP. X

Fourthly, If the fervour of the Sun were the sole cause hereof in *Ethiopia* or any land of *Negroes*, it were also reasonable that inhabitants of the same latitude, subjected unto the same vicinity of the Sun, the same diurnal arch, and direction of its rayes, should also partake of the same hue and complexion, which notwithstanding they do not. For the Inhabitants of the same latitude in *Asia* are of a different complexion, as are the Inhabitants of *Cambogia* and *Java*, insomuch that some conceive the *Negro* is properly a native of *Africa*, and that those places in *Asia* inhabited now by *Moors*, are but the intrusions of *Negroes* arriving first from *Africa*, as we generally conceive of *Madagascar*, and the adjoyning Islands, who retain the same complexion unto this day. But this defect is more remarkable in *America*; which although subjected unto both the Tropicks, yet are not the Inhabitants black between, or near, or under

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either; neither to the Southward in *Brasilia*, *Chili*, or *Peru*; nor yet to the Northward in *Hispaniola*, *Castilia*, *del Oro*, or *Nicaragua*. And although in many parts thereof there be at present swarms of *Negroes* serving under the *Spaniard*, yet were they all transported from *Africa*, since the discovery of *Columbus*; and are not indigenous or proper natives of *America*.

Fifthly, We cannot conclude this complexion in Nations from the vicinity or habitude they hold unto the Sun; for even in *Africa* they be *Negroes* under the Southern Tropick, but are not all of this hue either under or near the Northern. So the people of *Gualata*, *Agades*, *Garamantes*, and of *Goaga*, all within the Northern Tropicks are not *Negroes*; but on the other side about *Capo Negro*, *Cefala*, and *Madagascar*, they are of a jetty black.

Now if to salve this Anomaly we say the heat of the Sun is more powerful in the Southern Tropick, because in the sign of Capricorn fals out the Perigeum or lowest place of the Sun in his Excentrick, whereby he becomes nearer unto them than unto the other in Cancer, we shall not absolve the doubt. And if any insist upon such niceties, and will presume a different effect of the Sun, from such a difference of place or vicinity, we shall ballance the same with the concernment of its motion, and time of revolution, and say he is more powerful in the Northern Hemisphere, and in the Apogeum; for therein his motion is slower, and so his heat respectively unto those habitations, as of duration, so also of more effect. For, though he absolve his revolution in 365 days, odd hours and minutes, yet by reason of Excentricity, his motion is unequal, and his course far longer in the Northern Semicircle, than in the Southern; for

the latter he passeth in a 178 days, but the other takes him a 187, that is, eleven days more. So is his presence more continued unto the Northern Inhabitants; and the longer day in Cancer is longer unto us, than that in Capricorn unto the Southern Habitator. Beside, hereby we only infer an inequality of heat in different Tropicks, but not an equality of effects in other parts subjected to the same. For, in the same degree, and as near the earth he makes his revolution unto the *American*, whose Inhabitants notwithstanding partake not of the same effect. And if herein we seek a relief from the Dog-star, we shall introduce an effect proper unto a few, from a cause common unto many; for upon the same grounds that Star should have as forcible a power upon *America* and *Asia*; and although it be not vertical unto any part of *Asia*, but only passeth by *Beach, in terra incognita*; yet is it so unto *America*, and vertically passeth over the habitations of *Peru* and *Brasilia*. CHAP. X

Sixthly, And which is very considerable, there are *Negroes* in *Africa* beyond the Southern Tropick, and some so far removed from it, as Geographically the clime is not intemperate, that is, near the Cape of good Hope, in 36 of the Southern Latitude. Whereas in the same elevation Northward, the Inhabitants of *America* are fair; and they of *Europe* in *Candy*, *Sicily*, and some parts of *Spain*, deserve not properly so low a name as *Tawny*.

Lastly, Whereas the *Africans* are conceived to be more peculiarly scorched and torrified from the Sun, by addition of driness from the soil, from want and defect of water, it will not excuse the doubt. For the parts which the *Negroes* possess, are not so void of Rivers and moisture, as is presumed; for on the

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other side the mountains of the Moon, in that great tract called *Zanzibar*, there are the mighty Rivers of *Suama* and *Spirito Santo*; on this side, the great River *Zaire*, the mighty *Nile* and *Niger*; which do not only moisten and contemperate the air by their exhalations, but refresh and humectate the earth by their annual Inundations. Beside, in that part of *Africa*, which with all disadvantage is most dry, that is, in situation between the Tropicks, defect of Rivers and inundations, as also abundance of Sands, the people are not esteemed *Negroes*; and that is *Lybia*, which with the *Greeks* carries the name of all *Africa*. A region so desert, dry and sandy, that Travellers (as *Leo* reports) are fain to carry water on their Camels; whereof they find not a drop sometime in six or seven days. Yet is this Country accounted by Geographers no part of *terra Nigritarum*, and *Ptolomy* placeth herein the *Leuco Æthiops*, or pale and Tawny *Moors*.

The dryness of Lybia.

Now the ground of this opinion might be the visible quality of Blackness observably produced by heat, fire and smoak; but especially with the Ancients the violent esteem they held of the heat of the Sun, in the hot or torrid Zone; conceiving that part unhabitable, and therefore that people in the vicinities or frontiers thereof, could not escape without this change of their complexions. But how far they were mistaken in this apprehension, modern Geography hath discovered: And as we have declared, there are many within this Zone whose complexions descend not so low as unto blackness. And if we should strictly insist hereon, the possibility might fall into question; that is, whether the heat of the Sun, whose fervour may swart a living part, and even black a dead or dissolving flesh, can yet in animals, whose parts are

successive and in continual flux, produce this deep and perfect gloss of Blackness. CHAP. X

The particular causes of the Negroes *blackness probably.*

Thus having evinced, at least made dubious, the Sun is not the Author of this Blackness, how, and when this tincture first began is yet a Riddle, and positively to determine, it surpasseth my presumption. Seeing therefore we cannot discover what did effect it, it may afford some piece of satisfaction to know what might procure it. It may be therefore considered, whether the inward use of certain waters or fountains of peculiar operations, might not at first produce the effect in question. For, of the like we have records in *Aristotle*, *Strabo* and *Pliny*, who hath made a collection hereof, as of two fountains in *Bœotia*, the one making Sheep white, the other black; of the water of *Siberis* which made Oxen black, and the like effect it had also upon men, dying not only the skin, but making their hairs black and curled. This was the conceit of *Aristobulus*, who received so little satisfaction from the other, or that it might be caused by heat, or any kind of fire, that he conceived it as reasonable to impute the effect unto water.

Secondly, It may be perpended whether it might not fall out the same way that *Jacobs* cattle became speckled, spotted and ring-straked, that is, by the Power and Efficacy of Imagination; which produceth effects in the conception correspondent unto the phancy of the Agents in generation; and sometimes assimilates the Idea of the Generator into a reality in the thing ingendred. For, hereof there pass for current many indisputed examples; so in *Hippocrates* we read of one, that from an intent view of a Picture conceived a *Negro*; And in the History of *Heliodore* of a Moorish Queen, who upon aspection of the Picture of *Andromeda*,

Vide plura apud *Thes. Fienum*, de viribus imaginationis.

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conceived and brought forth a fair one. And thus perhaps might some say was the beginning of this complexion: induced first by Imagination, which having once impregnated the seed, found afterward concurrent co-operation, which were continued by Climes, whose constitution advantaged the first impression. Thus *Plotinus* conceiveth white Peacocks first came in. Thus many opinion that from aspection of the Snow, which lieth long in Northern Regions, and high mountains, Hawks, Kites, Beares, and other creatures become white; and by this way *Austin* conceiveth the devil provided, they never wanted a white spotted Ox in *Egypt*; for such an one they worshipped, and called *Apis*.

Why Beares, etc. white in some places.

Thirdly, It is not indisputable whether it might not proceed from such a cause and the like foundation of Tincture, as doth the black Jaundise, which meeting with congenerous causes might settle durable inclinations, and advance their generations unto that hue, which were naturally before but a degree or two below it. And this transmission we shall the easier admit in colour, if we remember the like hath been effected in organical parts and figures; the Symmetry whereof being casually or purposely perverted; their morbosities have vigorously descended to their posterities, and that in durable deformities. This was the beginning of *Macrocephali*, or people with long heads, whereof *Hippocrates* hath clearly delivered himself: *Cum primum editus est Infans, caput ejus tenellum manibus effingunt, et in logitudine adolescere cogunt; hoc institutum primum hujusmodi, naturæ dedit vitium, successu vero temporis in naturam abiit, ut proinde instituto nihil amplius opus esset; semen enim genitale ex omnibus corporis partibus provenit, ex sanis quidem*

De Aere, Aquis, et Locis.

sanum, ex morbosis morbosum. Si igitur ex calvis calvi, ex cæciis cæcii, et ex distortis, ut plurimum, distorti gignuntur, eademque in cæteris formis valet ratio, quid prohibet cur non ex macrocephalis macrocephali gignantur? Thus as *Aristotle* observeth, the Deers of *Arginusa* had their ears divided; occasioned at first by slitting the ears of Deers. Thus have the *Chineses* little feet, most *Negroes* great Lips and flat Noses; And thus many *Spaniards*, and *Mediterranean* Inhabitants, which are of the Race of *Barbary Moors* (although after frequent commixture) have not worn out the *Camoys* Nose unto this day. CHAP. X *Flat Nose.*

Artificial *Negroes*, or *Gypsies* acquire their complexion by anointing their bodies with Bacon and fat substances, and so exposing them to the Sun. In *Guiny Moors* and others, it hath been observed, that they frequently moisten their skins with fat and oyly materials, to temper the irksom driness thereof from the parching rayes of the Sun. Whether this practise at first had not some efficacy toward this complexion, may also be considered.

Lastly, If we still be urged to particularities, and such as declare how, and when the seed of *Adam* did first receive this tincture; we may say that men became black in the same manner that some Foxes, Squirrels, Lions, first turned of this complexion, whereof there are a constant sort in divers Countries; that some Chaughs came to have red Legs and Bils, that Crows became pyed: All which mutations however they began, depend on durable foundations; and such as may continue for ever. And if as yet we must farther define the cause and manner of this mutation, we must confess, in matters of Antiquity, and such as are decided by History, if their Originals

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and first beginnings escape a due relation, they fall into great obscurities, and such as future Ages seldom reduce unto a resolution. Thus if you deduct the administration of Angels, and that they dispersed the creatures into all parts after the flood, as they had congregated them into *Noahs* Ark before; it will be no easie question to resolve, how several sorts of animals were first dispersed into Islands, and almost how any into *America*: How the venereal Contagion began in that part of the earth, since history is silent, is not easily resolved by Philosophy. For whereas it is imputed unto Anthropophagy, or the eating of mans flesh; that cause hath been common unto many other Countries, and there have been Canibals or men eaters in the three other parts of the world, if we credit the relations of *Ptolomy*, *Strabo* and *Pliny*. And thus if the favourable pen of *Moses* had not revealed the confusion of tongues, and positively declared their division at *Babel*, our disputes concerning their beginning had been without end; and I fear we must have left the hopes of that decision unto *Elias*.

How sundry kinds of Animals come to be found in Islands.

Elias cum venerit solvet dubium.

And if any will yet insist, and urge the question farther still upon me, I shall be enforced unto divers of the like nature, wherein perhaps I shall receive no greater satisfaction. I shall demand how the Camels of *Bactria* came to have two bunches on their backs, whereas the Camels of *Arabia* in all relations have but one? How Oxen in some Countries began and continue gibbous or bunch-back'd? what way those many different shapes, colours, hairs, and natures of Dogs came in? how they of some Countries became depilous, and without any hair at all, whereas some sorts in excess abound therewith? How the Indian Hare came to have a long tail, whereas that part in others attains

no higher than a scut? How the hogs of *Illyria* which *Aristotle* speaks of, became solipedes or whole-hoofed, whereas in other parts they are bisulcous, and described cloven-hoofed by God himself? All which with many others must needs seem strange unto those that hold there were but two of the unclean sort in the ark; and are forced to reduce these varieties to unknown originals.

How the complexion of the Negroes may be propagated.

However therefore this complexion was first acquired, it is evidently maintained by generation, and by the tincture of the skin as a spermatical part traduced from father unto Son; so that they which are strangers contract it not, and the Natives which transmigrate, omit it not without commixture, and that after divers generations. And this affection (if the story were true) might wonderfully be confirmed, by what *Maginus* and others relate of the Emperour of *Æthiopia*, or *Prester John*, who derived from *Solomon* is not yet descended into the hue of his Country, but remains a *Mulatto*, that is, of a Mongril complexion unto this day. Now although we conceive this blackness to be seminal, yet are we not of *Herodotus* conceit, that their seed is black. An opinion long ago rejected by *Aristotle*, and since by sense and enquiry. His assertion against the Historian was probable, that all seed was white; that is without great controversie in viviparous Animals, and such as have Testicles, or preparing vessels wherein it receives a manifest dealbation. And not only in them, but (for ought I know) in Fishes not abating the seed of Plants; whereof at least in most though the skin and covering be black, yet is the seed and fructifying part not so; as may be observed in the seeds of *Onyons*, *Pyonie* and *Basil*. Most controvertible it seems in the spawn of Frogs, and Lobsters,

CHAP. X whereof notwithstanding at the very first the spawn is white, contracting by degrees a blackness, answerable in the one unto the colour of the shell, in the other unto the Porwigle or Tadpole; that is that Animall which first proceedeth from it. And thus may it also be in the generation and sperm of Negroes; that being first and in its naturals white, but upon separation of parts, accidents before invisible become apparent; there arising a shadow or dark efflorescence in the outside; whereby not only their legitimate and timely births, but their abortions are also dusky, before they have felt the scorch and fervor of the Sun.

CHAPTER XI

Of the same.

A SECOND opinion there is, that this complexion was first a curse of God derived unto them from *Cham*, upon whom it was inflicted for discovering the nakedness of *Noah*. Which notwithstanding is sooner affirmed then proved, and carrieth with it sundry improbabilities. For first, if we derive the curse on *Cham*, or in general upon his posterity, we shall denigrate a greater part of the earth then was ever so conceived; and not only paint the Æthiopians and reputed sons of *Cush*, but the people also of *Egypt*, *Arabia*, *Assyria* and *Chaldea*; for by this race were these Countries also peopled. And if concordantly unto *Berosus*, the fragment of *Cato de Originibus*, some things of *Halicarnasseus*, *Macrobius*, and out of them of *Leandro* and *Annius*, we shall conceive of the travels of *Camese* or *Cham*; we may introduce a

generation of *Negroes* as high as *Italy*; which part was never culpable of deformity, but hath produced the magnified examples of beauty. CHAP. XI

Secondly, The curse mentioned in Scripture was not denounced upon *Cham*, but *Canaan* his youngest son, and the reasons thereof are divers. The first, from the Jewish Tradition, whereby it is conceived that *Canaan* made the discovery of the nakedness of *Noah*, and notified it unto *Cham*. Secondly, to have cursed *Cham* had been to curse all his posterity, whereof but one was guilty of the fact. And lastly, he spared *Cham*, Cap. 9. because he had blessed him before. Now if we confine this curse unto *Canaan*, and think the same fulfilled in his posterity; then do we induce this complexion on the Sidonians, then was the promised land a tract of Negroes; For from *Canaan* were descended the *Canaanites*, *Jebusites*, *Amorites*, *Gergazites* and *Hivites*, which were possessed of that land.

Thirdly, Although we should place the original of this curse upon one of the sons of *Cham*, yet were it not known from which of them to derive it. For the particularity of their descents is imperfectly set down by accountants, nor is it distinctly determinable from whom thereof the *Æthiopians* are proceeded. For whereas these of *Africa* are generally esteemed to be the Issue of *Chus*, the elder son of *Cham*, it is not so easily made out. For the land of *Chus*, which the Septuagint translates *Æthiopia*, makes no part of *Africa*, nor is it the habitation of Blackmores, but the Country of *Arabia*, especially the Happy and Stony possessions and Colonies of all the sons of *Chus*, excepting *Nimrod* and *Havilah*: possessed and planted wholly by the children of *Chus*, that is, by *Sabtah* and *Raamah*, *Sabtacha*, and the sons of *Raamah*, *Dedan*, and *Sheba*,

CHAP. XI according unto whose names the Nations of those parts have received their denominations, as may be collected from *Pliny* and *Ptolomy*; and as we are informed by credible Authors, they hold a fair Analogy in their names, even unto our days. So the wife of *Moses* translated in Scripture an *Æthiopian*, and so confirmed by the fabulous relation of *Josephus*, was none of the daughters of *Africa*, nor any Negroe of *Æthiopia*, but the daughter of *Jethro*, Prince and Priest of *Madian*, which was a part of *Arabia* the stony, bordering upon the Red Sea. So the Queen of *Sheba* came not unto *Solomon* out of *Æthiopia*, but from *Arabia*, and that part thereof which bore the name of the first planter, the son of *Chus*. So whether the Eunuch which *Philip* the Deacon baptised, were servant unto *Candace* Queen of the *African Æthiopia* (although *Damianus a Goes*, *Codignus*, and the Æthiopick relations averr) is yet by many, and with strong suspitions doubted. So that Army of a million, which *Zerah* King of *Æthiopia* is said to bring against *Asa*, was drawn out of *Arabia*, and the plantations of *Chus*; not out of *Æthiopia*, and the remote habitations of the Moors. For it is said that *Asa* pursuing his victory, took from him the City *Gerar*; now *Gerar* was no City in or near *Æthiopia*, but a place between *Cadesh* and *Zur*, where *Abraham* formerly sojourned. Since thereof these *African Æthiopians* are not convinced by the common acception to be the sons of *Chus*, whether they be not the posterity of *Phut* or *Mizraim*, or both, it is not assuredly determined. For *Mizraim*, he possessed *Egypt*, and the East parts of *Africa*. From *Lubym* his son came the *Lybians*, and perhaps from them the *Æthiopians*. *Phut* possessed *Mauritania*, and the Western parts of *Africa*, and from these perhaps

descended the Moors of the West, of *Mandinga*, *Meleguette* and *Guinie*. But from *Canaan*, upon whom the curse was pronounced, none of these had their originall; for he was restrained unto *Canaan* and *Syria*; although in after Ages many Colonies dispersed, and some thereof upon the coasts of *Africa*, and prepossessions of his elder brothers. CHAP. XI

Fourthly, To take away all doubt or any probable divarication, the curse is plainly specified in the Text, nor need we dispute it, like the mark of *Cain*; *Servus servorum erit fratribus suis*, Cursed be *Canaan*, a servant of servants shall he be unto his brethren; which was after fulfilled in the conquest of *Canaan*, subdued by the *Israelites*, the posterity of *Sem*. Which Prophecy *Abraham* well understanding, took an oath of his servant not to take a wife for his son *Isaac* out of the daughters of the *Canaanites*; and the like was performed by *Isaac* in the behalf of his Son *Jacob*. As for *Cham* and his other sons, this curse attained them not; for *Nimrod* the son of *Chus* set up his kingdom in *Babylon*, and erected the first great Empire; *Mizraim* and his posterity grew mighty Monarchs in *Egypt*; and the Empire of the *Æthiopians* hath been as large as either. Nor did the curse descend in generall upon the posterity of *Canaan*: for the *Sidonians*, *Arkites*, *Hamathites*, *Sinites*, *Arvadites*, and *Zemerites* seem exempted. But why there being eleven Sons, five only were condemned and six escaped the malediction, is a secret beyond discovery.

Lastly, Whereas men affirm this colour was a Curse, I cannot make out the propriety of that name, it neither seeming so to them, nor reasonably unto us; for they take so much content therein, that they esteem deformity by other colours, describing the

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Devil, and terrible objects, white. And if we seriously consult the definitions of beauty, and exactly perpend what wise men determine thereof, we shall not apprehend a curse, or any deformity therein. For first, some place the essence thereof in the proportion of parts, conceiving it to consist in a comely commensurability of the whole unto the parts, and the parts between themselves: which is the determination of the best and learned Writers. Now hereby the Moors are not excluded from beauty: there being in this description no consideration of colours, but an apt connexion and frame of parts and the whole. Others there be, and those most in number, which place it not only in proportion of parts, but also in grace of colour. But to make Colour essential unto Beauty, there will arise no slender difficulty: For *Aristotle* in two definitions of pulchritude, and *Galen* in one, have made no mention of colour. Neither will it agree unto the Beauty of Animals: wherein notwithstanding there is an approved pulchritude. Thus horses are handsome under any colour, and the symmetry of parts obscures the consideration of complexions. Thus in concolour animals and such as are confined unto one colour, we measure not their Beauty thereby: For if a Crow or Black-bird grow white, we generally account it more pretty; and in almost a monstrosity descend not to opinion of deformity. By this way likewise the Moors escape the curse of deformity: there concurring no stationary colour, and sometimes not any unto Beauty.

The Platonick contemplators reject both these descriptions founded upon parts and colours, or either: as *M. Leo* the Jew hath excellently discoursed in his Genealogy of Love, defining beauty a formal grace, which delights and moves them to love which compre-

hend it. This grace say they, discoverable outwardly, is the resplendor and Ray of some interiour and invisible Beauty, and proceedeth from the forms of compositions amiable. Whose faculties if they can aptly contrive their matter, they beget in the subject an agreeable and pleasing beauty; if over-ruled thereby, they evidence not their perfections, but run into deformity. For seeing that out of the same materials, *Thersites* and *Paris*, Beauty and monstrosity may be contrived; the forms and operative faculties introduce and determine their perfections. Which in natural bodies receive exactness in every kind, according to the first *Idea* of the Creator, and in contrived bodies the phancy of the Artificer. And by this consideration of Beauty, the Moors also are not excluded, but hold a common share therein with all mankind. CHAP. XI

Lastly, In whatsoever its *Theory* consisteth, or if in the general, we allow the common conceit of symmetry and of colour, yet to descend unto singularities, or determine in what symmetry or colour it consisted, were a slippery designation. For Beauty is determined by opinion, and seems to have no essence that holds one notion with all; that seeming beauteous unto one, which hath no favour with another; and that unto every one, according as custome hath made it natural, or sympathy and conformity of minds shall make it seem agreeable. Thus flat noses seem comely unto the Moor, an Aquiline or hawked one unto the *Persian*, a large and prominent nose unto the Romane; but none of all these are acceptable in our opinion. Thus some think it most ornamental to wear their Bracelets on their Wrests, others say it is better to have them about their Ancles; some think it most comely to wear their Rings and Jewels in the Ear, others will have

CHAP. XI them about their Privities; a third will not think they are compleat except they hang them in their lips, cheeks, or noses. Thus *Homer* to set off *Minerva*, calleth her γλαυκῶπις, that is, gray or light-blew eyed: now this unto us seems far less amiable then the black. Thus we that are of contrary complexions accuse the blackness of the Moors as ugly: But the Spouse in the *Canticles* excuseth this conceit, in that description of hers, I am black, but comely. And howsoever *Cerberus*, and the furies of hell be described by the Poets under this complexion, yet in the beauty of our Saviour blackness is commended, when it is said, his locks are bushie and black as a Raven. So that to inferr this as a curse, or to reason it as a deformity, is no way reasonable; the two foundations of beauty, Symmetry and complexion receiving such various apprehensions, that no deviation will be expounded so high as a curse or undeniable deformity, without a manifest and confessed degree of monstrosity.

Lastly, It is a very injurious method unto Philosophy, and a perpetual promotion of ignorance, in points of obscurity; nor open unto easie considerations, to fall upon a present refuge unto Miracles; or recurr unto immediate contrivance, from the insearchable hands of God. Thus in the conceit of the evil odor of the Jews, Christians without a further research into the verity of the thing, or inquiry into the cause, draw up a judgement upon them from the passion of their Saviour. Thus in the wondrous effects of the clime of *Ireland*, and the freedom from all venemous creatures, the credulity of common conceit imputes this immunity unto the benediction of S. *Patrick*, as *Beda* and *Gyraldus* have left recorded. Thus the Ass having a peculiar mark of a cross made by a black list down

his back, and another athwart, or at right angles down his shoulders; common opinion ascribes this figure unto a peculiar signation; since that beast had the honour to bear our Saviour on his back. Certainly this is a course more desperate then Antipathies, Sympathies, or occult qualities; wherein by a final and satisfactive discernment of faith, we lay the last and particular effects upon the first and general cause of all things; whereas in the other, we do but palliate our determinations, untill our advanced endeavours do totally reject, or partially salve their evasions.

CHAPTER XII

A Digression concerning Blackness.

THERE being therefore two opinions repugnant unto each other, it may not be presumptive or skeptical to doubt of both. And because we remain imperfect in the general Theory of colours, we shall deliver at present a short discovery of blackness; wherein although perhaps we afford no greater satisfaction then others, yet shall we Emperically and sensibly discourse hereof; deducing the causes of Blackness from such Originals in nature, as we do generally observe things are denigrated by Art. And herein I hope our progression will not be thought unreasonable, for Art being the imitation of Nature, or Nature at the second hand, it is but a sensible expression of effects dependant on the same, though more removed causes: and therefore the works of the one may serve to discover the other. And though colours of bodies may arise according to the receptions,

CHAP. XII refraction, or modification of Light; yet are there certain materialls which may dispose them unto such qualities.

And first, Things become black by a sooty and fuliginous matter proceeding from the Sulphur of bodies torrified; not taking *fuligo* strictly, but in opposition unto ἀτμὸς, that is any kind of vaporous or madefying excretion; and comprehending ἀναθυμίασις, that is as *Aristotle* defines it, a separation of moist and dry parts made by the action of heat or fire, and colouring bodies objected. Hereof in his Meteors, from the qualities of the subject he raiseth three kinds; the exhalations from ligneous and lean bodies, as bones, hair, and the like he calleth κάπνος, *fumus*, from fat bodies, and such as have not their fatness conspicuous or separated he termeth λίγνυς, *fuligo*, as wax, rosin, pitch, or turpentine; that from unctuous bodies, and such whose oyliness is evident, he named κνίσῃ or *nidor*. Now every one of these do black bodies objected unto them, and are to be conceived in the sooty and fuliginous matter expressed.

I say, proceeding from the sulphur of bodies torrified, that is the oylie fat, and unctuous parts wherein consist the principles of flammability. Not pure and refined sulphur, as in the Spirits of wine often rectified; but containing terrestrious parts, and carrying with it the volatile salt of the body, and such as is distinguishable by taste in soot; nor vulgar and usual sulphur, for that leaves none or very little blackness, except a metalline body receive the exhalation.

I say, torrified, sindged, or suffering some impression from fire; thus are bodies casually or artificially denigrated, which in their naturals are of another complexion; thus are Charcoals made black by an infection

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of their own suffitus, so is it true what is affirmed of combustible bodies. *Adusta nigra, perusta alba*; black at first from the fuliginous tincture, which being exhaled they become white, as is perceptible in ashes. And so doth fire cleanse and purifie bodies, because it consumes the sulphureous parts, which before did make them foul: and therefore refines those bodies which will never be mundified by water. Thus Camphire of a white substance, by its *fuligo* affordeth a deep black. So is pitch black, although it proceed from the same tree with Rosin, the one distilling forth, the other forced by fire. So of the suffitus of a torch, do Painters make a velvet black: so is lamp-black made: so of burnt Harts-horn a sable; so is Bacon denigrated in chimnies: so in Feavers and hot distempers from choler adust is caused a blackness in our tongues, teeth and excretions: so are ustilago, brant corn and trees black by blasting; so parts cauterized, gangrenated, siderated and mortified, become black, the radical moisture, or vital sulphur suffering an extinction, and smothered in the part effected. So not only actual but potential fire: not burning fire, but also corroding water will induce a blackness. So are Chimnies and Furnaces generally black, except they receive a clear and manifest sulphur: for the smoak of sulphur will not black a paper, and is commonly used by women to whiten Tiffinies, which it performeth by an acide vitriolous, and penetrating spirit ascending from it, by reason whereof it is not apt to kindle any thing nor will it easily light a Candle, untill that spirit be spent, and the flame approacheth the match. This is that acide and piercing spirit which with such activity and compunction invadeth the brains and nostrils of those that receive it. And thus when

Why the smoak of pure Sulphur blacks not.

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Bellonius affirmeth that Charcoals made out of the wood of Oxycedar are white, Dr. *Jordan* in his judicious Discourse of mineral waters yeeldeth the reason, because their vapors are rather sulphureous then of any other combustible substance. So we see that *Tinby* coals will not black linnen being hanged in the smoak thereof, but rather whiten it, by reason of the drying and penetrating quality of sulphur, which will make Red roses white. And therefore to conceive a general blackness in Hell, and yet therein the pure and refined flames of sulphur, is no Philosophical conception, nor will it well consist with the real effects of its nature.

These are the advenient and artificial wayes of denigration, answerably whereto may be the natural progress. These are the wayes whereby culinary and common fires do operate, and correspondent hereunto may be the effects of fire elemental. So may Bitumen, Coals, Jet, Black-lead, and divers mineral earths become black; being either fuliginous concretions in the earth, or suffering a scorch from denigrating Principles in their formation. So men and other animals receive different tinctures from constitution and complexional efflorescences, and descend still lower, as they partake of the fuliginous and denigrating humour. And so may the *Æthiopians* or *Negroes* become coal-black, from fuliginous efflorescences and complexional tinctures arising from such probabilities, as we have declared before.

The second way whereby bodies become black, is an Atramentous condition or mixture, that is a vitriolate or copperose quality conjoyning with a terrestrious and astringent humidity; for so is *Atramentum Scriptorium*, or writing Ink commonly made by copperose

cast upon a decoction or infusion of galls. I say a vitriolous or copperous quality; for vitriol is the active or chief ingredient in Ink, and no other salt that I know will strike the colour with galls; neither Alom, Sal-gem, Nitre, nor Armoniack. Now artificial copperose, and such as we commonly use, is a rough and acrimonious kind of salt drawn out of ferreous and eruginous earths, partaking chiefly of Iron and Copper; the blew of Copper, the green most of Iron: Nor is it unusual to dissolve fragments of Iron in the liquor thereof, for advantage in the concretion. I say, a terrestrious or astringent humidity; for without this there will ensue no tincture; for Copperose in a decoction of Lettuce or Mallows affords no black, which with an astringent mixture it will do, though it be made up with oyl, as in printing and painting Ink. But whereas in this composition we use only Nut-gals, that is an excrescence from the Oak, therein we follow and beat upon the old receit; for any plant of austere and stiptick parts will suffice, as I have experimented in *Bistorte*, *Myrobolans*, *Myrtus Brabantica*, *Balaustium* and Red Roses. And indeed, most decoctions of astringent plants, of what colour soever, do leave in the Liquor a deep and Muscadine red: which by addition of vitriol descends into a black: and so *Dioscorides* in his receit of Ink, leaves out gall, and with copperose makes use of soot.

What the common Copperose is.

Now if we enquire in what part of vitriol this Atramental and denigrating condition lodgeth, it will seem especially to lie in the more fixed salt thereof; for the phlegm or aqueous evaporation will not denigrate; nor yet spirits of vitriol, which carry with them volatile and nimbler Salt: For if upon a decoction of Copperose and gall, be poured the spirits or oyl of

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vitriol, the liquor will relinquish his blackness; the gall and parts of the copperose precipitate unto the bottom, and the Ink grow clear again; which it will not so easily do in common Ink, because that gum is dissolved therein which hindereth the separation. But Colcothar or vitriol burnt, though unto a redness containing the fixed salt, will make good Ink; and so will the Lixivium, or Lye made thereof with warm water; but the Terra or Insipid earth remaining, affords no black at all, but serves in many things for a gross and useful red. And though Spirits of vitriol, projected upon a decoction of gals, will not raise a black, yet if these spirits be any way fixed, or return into vitriol again, the same will act their former parts and denigrate as before.

And if we yet make a more exact enquiry, by what this salt of vitriol more peculiarly gives this colour, we shall find it to be from a metalline condition, and especially an Iron Property or ferreous participation. For blew Copperose which deeply partakes of the copper will do it but weakly, Verdigrise which is made of Copper will not do it at all, but the filings of Iron infused in vinegar, will with a decoction of gals make good Ink, without any Copperose at all; and so will infusion of Load-stone; which is of affinity with Iron. And though more conspicuously in iron, yet such a Calcanthous or Atramentous quality, we will not wholly reject in other mettals; whereby we often observe black tinctures in their solutions. Thus a Lemmon, Quince or sharp Apple cut with a knife becomes immediately black: And from the like cause, Artichokes; so sublimate beat up with whites of eggs, if touched with a knife, becomes incontinently black. So *Aqua fortis*, whose ingredient is vitriol, will make

white bodies black. So leather dressed with the bark of Oak, is easily made black by a bare solution of Copperose. So divers Mineral waters and such as participate of Iron, upon an infusion of gals, become of a dark colour, and entering upon black. So steel infused, makes not only the liquor duskie, but in bodies wherein it concurs with proportionable tinctures makes also the excretions black. And so also from this vitriolous quality *Mercurius dulcis*, and vitriol vomitive occasion black ejections. But whether this denigrating quality in Copperose proceedeth from an Iron participation, or rather in Iron from a vitriolous communication; or whether black tinctures from metallical bodies be not from vitriolous parts contained in their sulphur, since common sulphur containeth also much vitriol, may admit consideration. However in this way of tincture, it seemeth plain, that Iron and Vitriol are the powerful Denigrators. CHAP. XII

Such a condition there is naturally in some living creatures. Thus that black humour by *Aristotle* named θόλος, and commonly translated *Atramentum*, may be occasioned in the Cuttle-fish. Such a condition there is naturally in some Plants, as Black-berries, Walnut-rinds, Black-cherries; whereby they extinguish inflammations, corroborate the stomack, and are esteemed specifical in the Epilepsie. Such an atramentous condition there is to be found sometime in the blood, when that which some call *Acetum*, others *Vitriolum*, concurs with parts prepared for this tincture. And so from these conditions the Moors might possibly become Negroes, receiving Atramentous impressions in some of those wayes, whose possibility is by us declared.

Nor is it strange that we affirm there are vitriolous

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How a vitriolous quality may be in living bodies.

parts, qualities, and even at some distance Vitriol it self in living bodies; for there is a sower stiptick salt diffused through the Earth, which passing a concoction in plants, becometh milder and more agreeable unto the sense, and this is that vegetable vitriol, whereby divers plants contain a gratefull sharpness, as Lemmons, Pomegranats, Cherries, or an austere and inconcocted roughness, as Sloes, Medlars and Quinces. And that not only vitriol is a cause of blackness, but that the salts of natural bodies do carry a powerfull stroke in the tincture and vernish of all things, we shall not deny, if we contradict not experience, and the visible art of Dyars; who advance and graduate their colours with Salts. For the decoctions of simples which bear the visible colours of bodies decocted, are dead and evanid, without the commixtion of Alum, Argol, and the like. And this is also apparent in Chymical preparations. So Cinaber becomes red by the acide exhalation of sulphur, which otherwise presents a pure and niveous white. So spirits of Salt upon a blew paper make an orient red. So Tartar or vitriol upon an infusion of violets affords a delightfull crimson. Thus it is wonderful what variety of colours the spirits of Saltpeter, and especially, if they be kept in a glass while they pierce the sides thereof; I say, what Orient greens they will project: from the like spirits in the earth the plants thereof perhaps acquire their verdure. And from such salary irradiations may those wondrous varieties arise, which are observable in Animals, as Mallards heads, and Peacocks feathers, receiving intention or alteration according as they are presented unto the light. Thus Saltpeter, Ammoniack and Mineral spirits emit delectable and various colours; and common *Aqua fortis* will in some green and narrow mouthed

Whence the colours of Plants, etc. may arise.

glasses, about the verges thereof, send forth a deep and Gentianella blew. CHAP. XII

Thus have we at last drawn our conjectures unto a period; wherein if our contemplations afford no satisfaction unto others, I hope our attempts will bring no condemnation on our selves (for besides that adventures in knowledge are laudable, and the assayes of weaker heads afford oftentimes improveable hints unto better) although in this long journey we miss the intended end; yet are there many things of truth disclosed by the way; and the collaterall verity may unto reasonable speculations some what requite the capital indiscovery.

CHAPTER XIII

Of Gypsies.

GREAT wonder it is not we are to seek in the original of *Æthiopians* and natural Negroes, being also at a loss concerning the Original of Gypsies and counterfeit Moors, observable in many parts of *Europe*, *Asia*, and *Africa*.

Common opinion deriveth them from *Egypt*, and from thence they derive themselves, according to their own account hereof, as *Munster* discovered in the letters and pass which they obtained from *Sigismund* the Emperour; that they first came out of lesser *Egypt*, that having defected from the Christian rule, and relapsed unto Pagan rites, some of every family were enjoyned this penance to wander about the world; or as *Aventinus* delivereth, they pretend for this vagabond course, a judgement of God upon their fore-

Opinions concerning the original of Gypsies.

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fathers, who refused to entertain the Virgin *Mary* and Jesus, when she fled into their Country.

Fernand. de Cordua didascal. multipl.

Which account notwithstanding is of little probability: for the generall stream of writers, who enquire into their originall, insist not upon this; and are so little satisfied in their descent from *Egypt*, that they deduce them from several other nations: *Polydore Virgil* accounting them originally *Syrians*, *Philippus Bergomas* fetcheth them from *Chaldæa*, *Æneas Sylvius* from some part of *Tartary*, *Bellonius* no further then *Walachia* and *Bulgaria*, nor *Aventinus* then the confines of *Hungaria*.

Observat. l. 2.

That they are no *Egyptians*, *Bellonius* maketh evident: who met great droves of Gypsies in *Egypt*, about Gran Cairo, Matærea, and the villages on the banks of *Nilus*, who notwithstanding were accounted strangers unto that Nation, and wanderers from foreign parts, even as they are esteemed with us.

Gypsies first known in Germany.

That they came not out of *Egypt* is also probable, because their first appearance was in *Germany*, since the year 1400, nor were they observed before in other parts of *Europe*, as is deducible from *Munster*, *Genebrard*, *Crantsius* and *Ortilius*.

But that they first set out not far from *Germany*, is also probable from their language, which was the Sclavonian tongue; and when they wandred afterward into *France*, they were commonly called *Bohemians*, which name is still retained for Gypsies. And therefore when *Crantsius* delivereth, they first appeared about the Baltick Sea, when *Bellonius* deriveth them from *Bulgaria* and *Walachia*, and others from about *Hungaria*, they speak not repugnantly hereto: for the language of those Nations was Sclavonian, at least some dialect thereof.

But of what nation soever they were at first, they are now almost of all; associating unto them some of every country where they wander: when they will be lost, or whether at all again, is not without some doubt: for unsetled nations have out-lasted others of fixed habitations: and though Gypsies have been banished by most Christian Princes, yet have they found some countenance from the great Turk, who suffereth them to live and maintain publick Stews near the Imperial City in *Pera*, of whom he often maketh a politick advantage, imploying them as spies into other nations, under which title they were banished by *Charles* the fift. CHAP. XIII

Bellon. observat. l. 2. *What use the Grand Signior maketh of Gypsies.*

CHAPTER XIV

Of some others.

WE commonly accuse the phancies of elder times in the improper figures of heaven assigned unto Constellations, which do not seem to answer them, either in Greek or Barbarick Spheres: yet equall incongruities have been commonly committed by Geographers and Historians, in the figurall resemblances of several regions on earth; While by *Livy* and *Julius*, *Rusticus* the Island of *Britain* is made to resemble a long dish or two-edged ax; *Italy* by *Numatianus* to be like an Oak-leaf: and *Spain* an Ox-hide; while the phancy of *Strabo* makes the habitated earth like a cloak, and *Dionysius Afer* will have it like a sling: with many others observable in good writers, yet not made out from the letter or signification; acquitting Astronomy in their figures of the

Tacit. de vita Jul. Agric.

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Zodiack: wherein they are not justified unto strict resemblances, but rather made out from the effects of Sun or Moon in these several portions of heaven, or from peculiar influences of those constellations, which some way make good their names.

Junctin. in Sph. l. de Sacro bosco. cap. 2.

Which notwithstanding being now authentick by prescription, may be retained in their naked acceptions, and names translated from substances known on earth. And therefore the learned *Hevelius* in his accurate Selenography, or description of the Moon, hath well translated the known appellations of Regions, Seas and Mountains, unto the parts of that Luminary: and rather then use invented names or humane denominations, with witty congruity hath placed *Mount Sinai*, *Taurus*, *Mœotis Palus*, the Mediterranean Sea, *Mauritania*, *Sicily* and *Asia* Minor in the Moon.

The Cabala of the Stars.

More hardly can we find the Hebrew letters in the heavens, made out of the greater and lesser Stars which put together do make up words, wherein Cabalisticall Speculators conceive they read the events of future things; and how from the Stars in the head of *Medusa*, to make out the word *Charab*; and thereby desolation presignified unto *Greece* or *Javan*, numerally characterized in that word, requireth no rigid reader.

Greffarel *out of R.* Chomer.

It is not easie to reconcile the different accounts of longitude, while in modern tables the hundred and eighty degree is more then thirty degrees beyond that part, where *Ptolomy* placeth an 180. Nor will the wider and more Western term of Longitude, from whence the Moderns begin their commensuration, sufficiently salve the difference. The ancients began the measure of Longitude from the fortunate Islands or Canaries, the Moderns from the Azores or Islands of S. *Michael*; but since the Azores are but fifteen

Athan. Kircher. in procemio.

degrees more West, why the Moderns should reckon 180, where *Ptolomy* accounteth above 220, or though they take in 15 degrees at the West, why they should reckon 30 at the East, beyond the same measure, is yet to be determined; nor would it be much advantaged, if we should conceive that the compute of *Ptolomy* were not so agreeable unto the Canaries, as the Hesperides or Islands of *Cabo Verde*. CHAP. XIV Robertus Hues de globis.

Whether the compute of moneths from the first appearance of the Moon, which divers nations have followed, be not a more perturbed way, then that which accounts from the conjunction, may seem of reasonable doubt; not only from the uncertainty of its appearance in foul and cloudy weather, but unequal time in any; that is sooner or later, according as the Moon shall be in the signs of long descention, as *Pisces*, *Aries*, *Taurus*, in the Perigeum or swiftest motion, and in the Northern Latitude: whereby sometimes it may be seen the very day of the change, as will observably happen 1654, in the moneths of April and May? or whether also the compute of the day be exactly made, from the visible arising or setting of the Sun, because the Sun is sometimes naturally set, and under the Horizon, when visibly it is above it; from the causes of refraction, and such as make us behold a piece of silver in a basin, when water is put upon it, which we could not discover before, as under the verge thereof. Hevel. Selenog. cap. 9. *When the Moon will be seen on the first day of the change.* *Why the Sun is seen after it is set, or naturally under the Horizon.*

Whether the globe of the earth be but a point, in respect of the Stars and Firmament, or how if the rayes thereof do fall upon a point, they are received in such variety of Angles, appearing greater or lesser from differences of refraction?

Whether if the motion of the Heavens should cease

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a while, all things would instantly perish? and whether this assertion doth not make the frame of sublunary things to hold too loose a dependency upon the first and conserving cause? at least impute too much unto the motion of the heavens, whose eminent activities are by heat, light and influence, the motion it self being barren, or chiefly serving for the due application of celestial virtues unto sublunary bodies as *Cabeus* hath learnedly observed?

To what the motion of the Heavens serveth, Met. Lib.

Whether Comets or blazing Stars be generally of such terrible effects, as elder times have conceived them; for since it is found that many, from whence these predictions are drawn, have been above the Moon; why they may not be qualified from their positions, and aspects which they hold with stars of favourable natures; or why since they may be conceived to arise from the effluviums of other Stars, they may not retain the benignity of their Originals; or since the natures of the fixed Stars are astrologically differenced by the Planets, and are esteemed Martial or Jovial, according to the colours whereby they answer these Planets; why although the red Comets do carry the portensions of Mars, the brightly-white should not be of the Influence of Jupiter or Venus, answerably unto *Cor Scorpii* and Arcturus, is not absurd to doubt.

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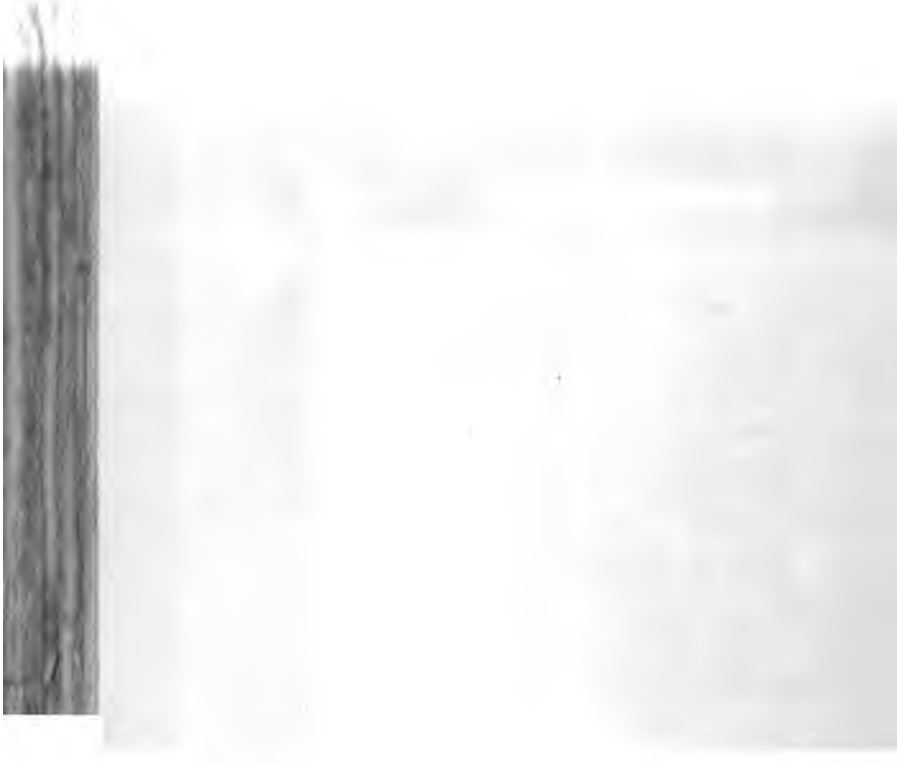

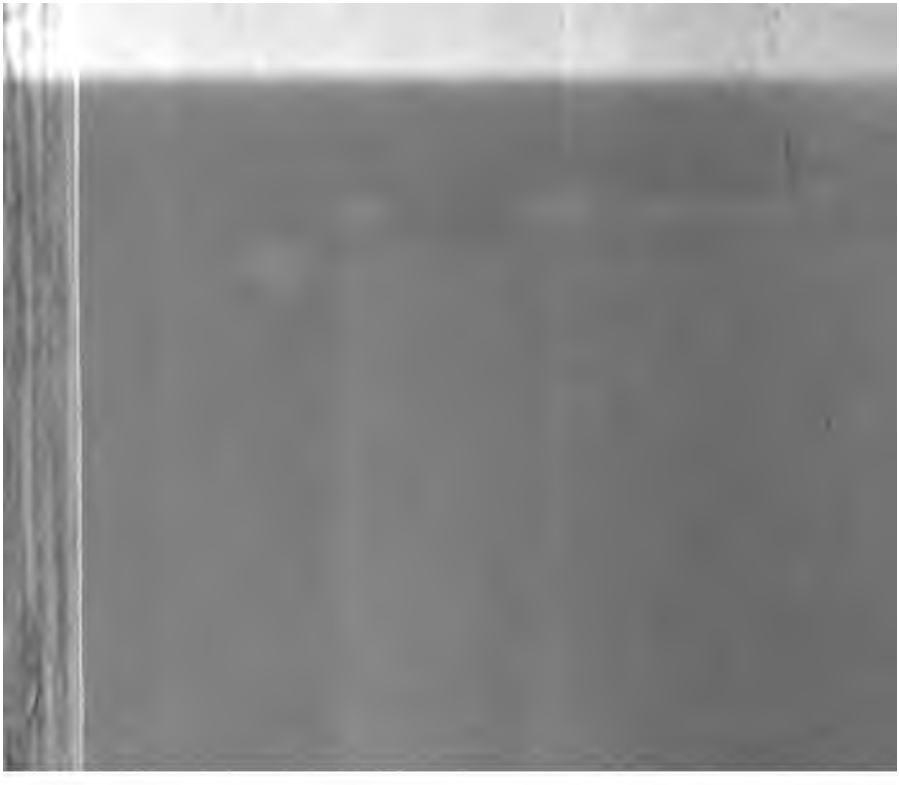

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